Table 5-34. Scale P.C. Board Assembly—P/N 83 600 70

Component Symbol	Part Number	Description
C1, C3, C5, C13, C14, C16, C18, C27, C29, C31	17 AY 652	Capacitor, 1 mF, 10%, 50 V
C2, C4, C6 through C11, C21 through C24	17 AY 646	Capacitor, 0.1 mF, 10%, 50 V
C12, C33	17 AY 640	Capacitor, 0.01 mF, 10%, 63 V
C15	17 AY 648	Capacitor, 0.22 mF, 10%, 50 V
C17	17 AY 650	Capacitor, 0.47 mF, 10%, 50 V
C19, C20	17 BF 016	Capacitor, 20 pF, 10%, 1KV
CR1, CR2, CR3, CR4, CR5	17 AR 501	Diode, switching
J1	Reference only	Connector, amp 6-pin single
J3	Reference only	Connector, amp 16-pin single
L1, L2	Reference only	Coil molded
PSW1, PSW2	Reference only	Polyswitch
PSW3	Reference only	Polyswitch
R1, R2, R8, R9	17 AF 384	Resistor, 100K, 1%, 1/8 film
R3, R12	17 AF 257	Resistor, 4¾" 1% 1/8 film
R4	17 AF 286	Resistor, 9.53K, 1%, 1/8 film
R5	17 AG 882	Resistor, 100K, 0.1%, 1/8 film
R6	17 AF 252	Resistor, 4.22K, 0.1%, 1/8 film
R7	17 AE 041	Resistor, 26.7 1% 1/8 film
R10, R13	17 AF 192	Resistor, 1K, 1%, 1/8 film
R11	17 AF 451	Resistor, 499K 1% 1/8 film
RN1	17 AU 077	Resistor network, 9@ 10K 5%
U1	Reference only	Linear amplifier
U2	Reference only	Operational amplifier
U3	Reference only	Analog/digital (A/D) converter
U4	Reference only	Microcontroller, microchip
U5	17 633 89	Integrated circuit, EEPROM, 1K
U6	17 AT 050	Integrated circuit, voltage regulator, negative, -5 V

Component Symbol	Part Number	Description
U7	17 629 52	Integrated circuit, power driver
X1	17 524 14	Crystal, 4 mHz
	17 633 94	Integrated circuit, 5V
	17 AP 190	Socket, integrated circuit, mounting, 8 dip
	Reference only	Socket, integrated circuit, 12 dip

NOTES:

Impeller Movement Detector P.C. Board Assembly—P/N 83 103 70

Figure 5-34. Impeller Movement Detector P.C. Board Assembly—P/N 83 103 70

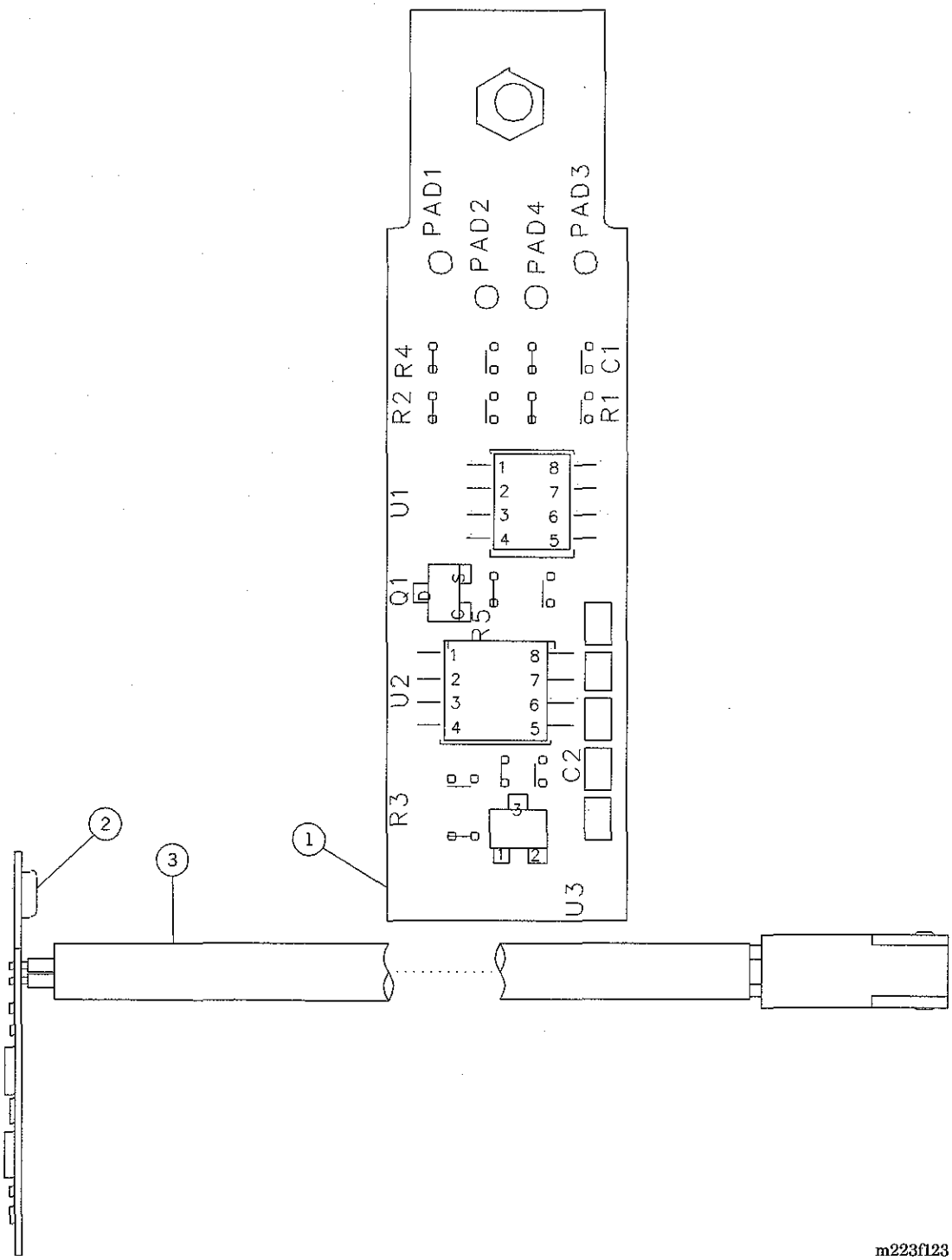


Table 5-35. Impeller Movement Detector P.C. Board Assembly—P/N 83 103 70

Component Symbol	Part Number	Description
C1	Reference only	Capacitor, 1.0 mfd, +80/-20%, 10V
C2	Reference only	Capacitor, 0.1 mfd, +80/-20%, 10V
Q1	Reference only	Transistor, N-channel
R1	Reference only	Resistor chip, 2.00 K, 1%, 1/8 W
R2	Reference only	Resistor chip, 953 Ω, 1%, 1/8 W
R3, R5	Reference only	Resistor chip, 20.0 K, 1%, 1/8 W
R4	Reference only	Resistor chip, 1.33 K, 1%, 1/8 W
U1	Reference only	Integrated circuit, voltage regulator +5V, 100 mA
U2	Reference only	Integrated circuit, microcontroller
U3	Reference only	Integrated circuit, hall effect sensor

Table 5-36. Impeller Movement Detector P.C. Board Assembly—P/N 83 103 70

Item Number	Part Number	Quantity	Description
1	83 103 00	1	P.C. board detail, impeller movement
2	Reference only	1	Nut, broaching, #4-40 thread
3	83 103 80	1	Cable assembly, impeller movement

IV Pole Assembly (Accessory)

Figure 5-35. IV Pole Assembly (Accessory)

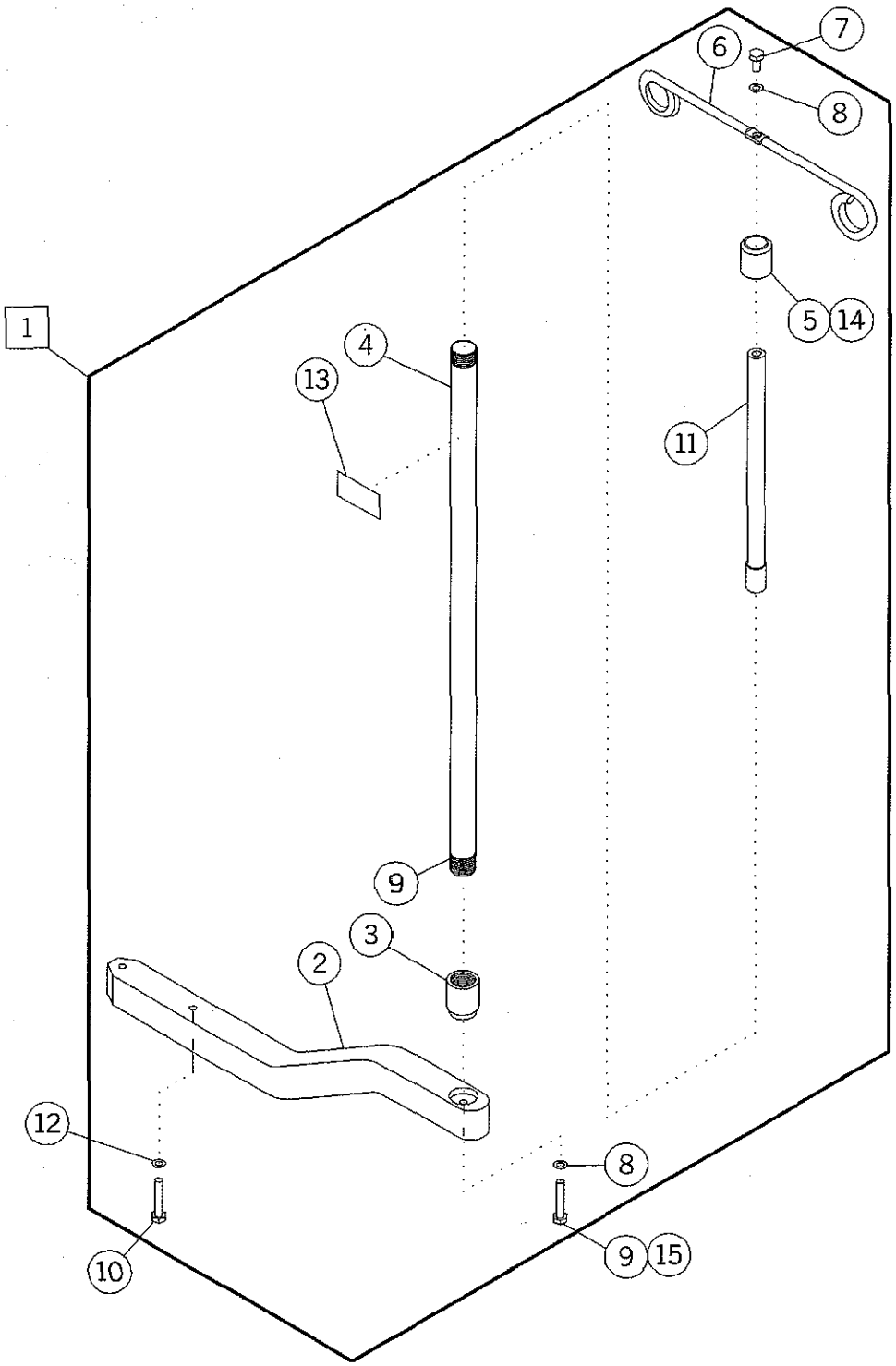


Table 5-37. IV Pole Assembly (Accessory)

Item Number	Part Number	Quantity	Description
1	83 444 00	1	IV pole assembly
2	83 442 01	1	Support arm, monitor/IV pole
3	83 444 04	1	Adapter, IV pole base
4	83 444 05	1	Base, IV pole
5	26 821 00	1	Nut, locking, 7/8"-20 special
6	26 822 00	1	Cross arm (IV)
7	99 064 21	1	Screw, 5/16"-18 x ½" cap hex
8	99 126 32	2	Washer, lock, 5/16"
9	Reference only	As required	Loctite®[a] adhesive #271-05
10	99 044 66	2	Screw #10-32 x 1¾" cap hex nylock
11	83 444 10	1	Upper extension, IV pole, 11.38" long
12	99 123 94	2	Washer, lock, external, #10
13	83 500 03	1	Label, weight limit, 11 lb
14	Reference only	As required	Lubricant
15	99 064 93	1	Screw, 5/16"-18 x 1.38" cap hex

a. Loctite® is a registered trademark of Loctite Corporation.

5

High Monitor Shelf Assembly (Accessory)

Figure 5-36. High Monitor Shelf Assembly (Accessory)

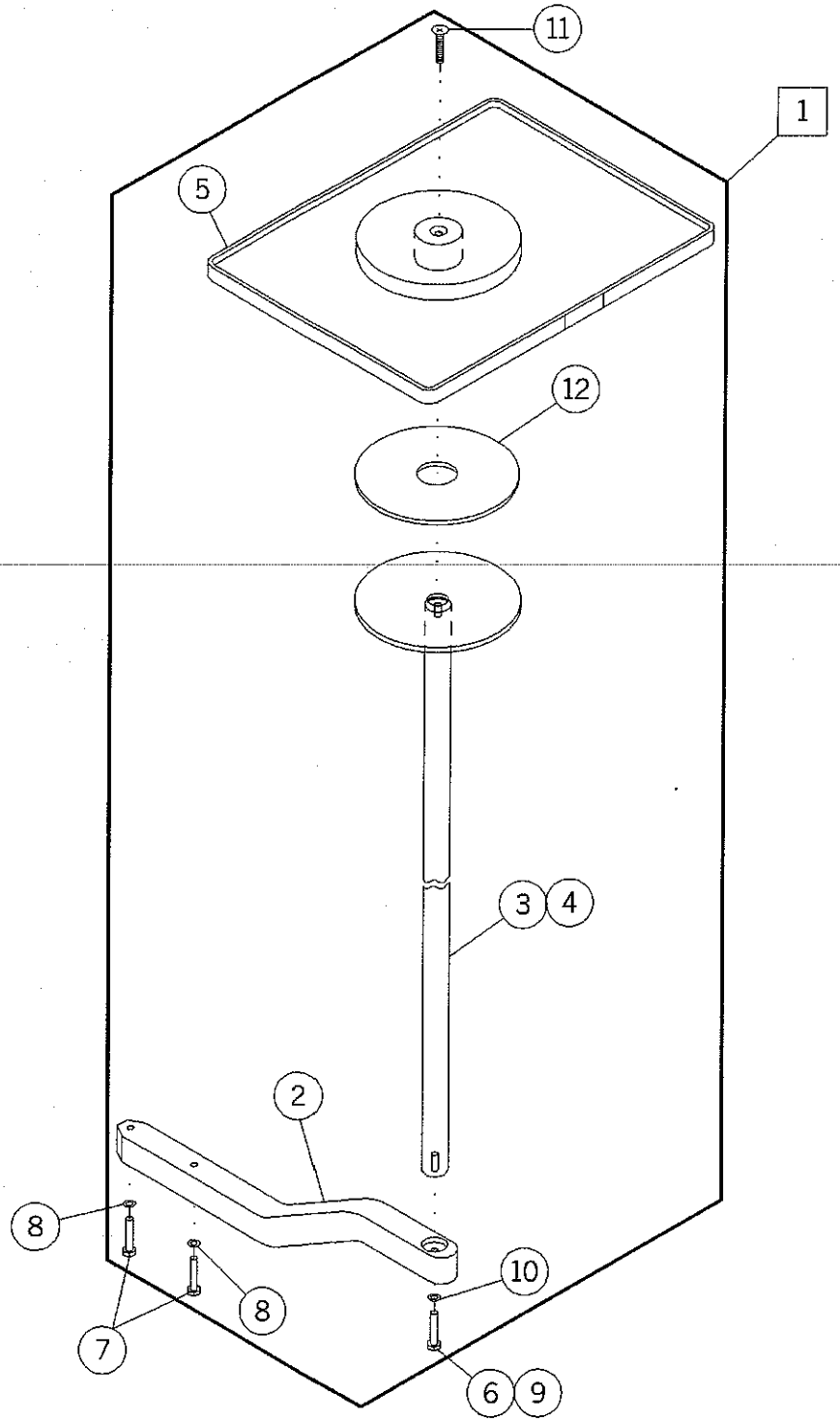


Table 5-38. High Monitor Shelf Assembly (Accessory)

Item Number	Part Number	Quantity	Description
1	83 442 00	1	Monitor shelf assembly, high
2	83 442 01	1	Support arm, monitor/IV pole
3	83 442 04	1	Pole, monitor shelf, 26.32"
4	83 442 05	1	Pole, monitor shelf, 8.63"
5	83 442 20	1	Monitor shelf subassembly
6	Reference only	As required	Loctite®[a] adhesive #271-05
7	99 044 66	2	Screw, #10-32 x 1¾" cap hex nylock
8	99 123 94	2	Washer, lock, external, #10
9	99 064 93	1	Screw, 5/16"-18 x 1.38" cap hex
10	99 126 32	1	Washer, lock, 5/16"
11	99 059 43	1	Screw, ¼"-20 x 2" flat phillips nylock
12	83 442 21	1	Washer, 6½" x ¾" x 0.09", polyurethane

a. Loctite® is a registered trademark of Loctite Corporation.

5

Swivel Drawer Assembly (Accessory)

Figure 5-37. Swivel Drawer Assembly (Accessory)

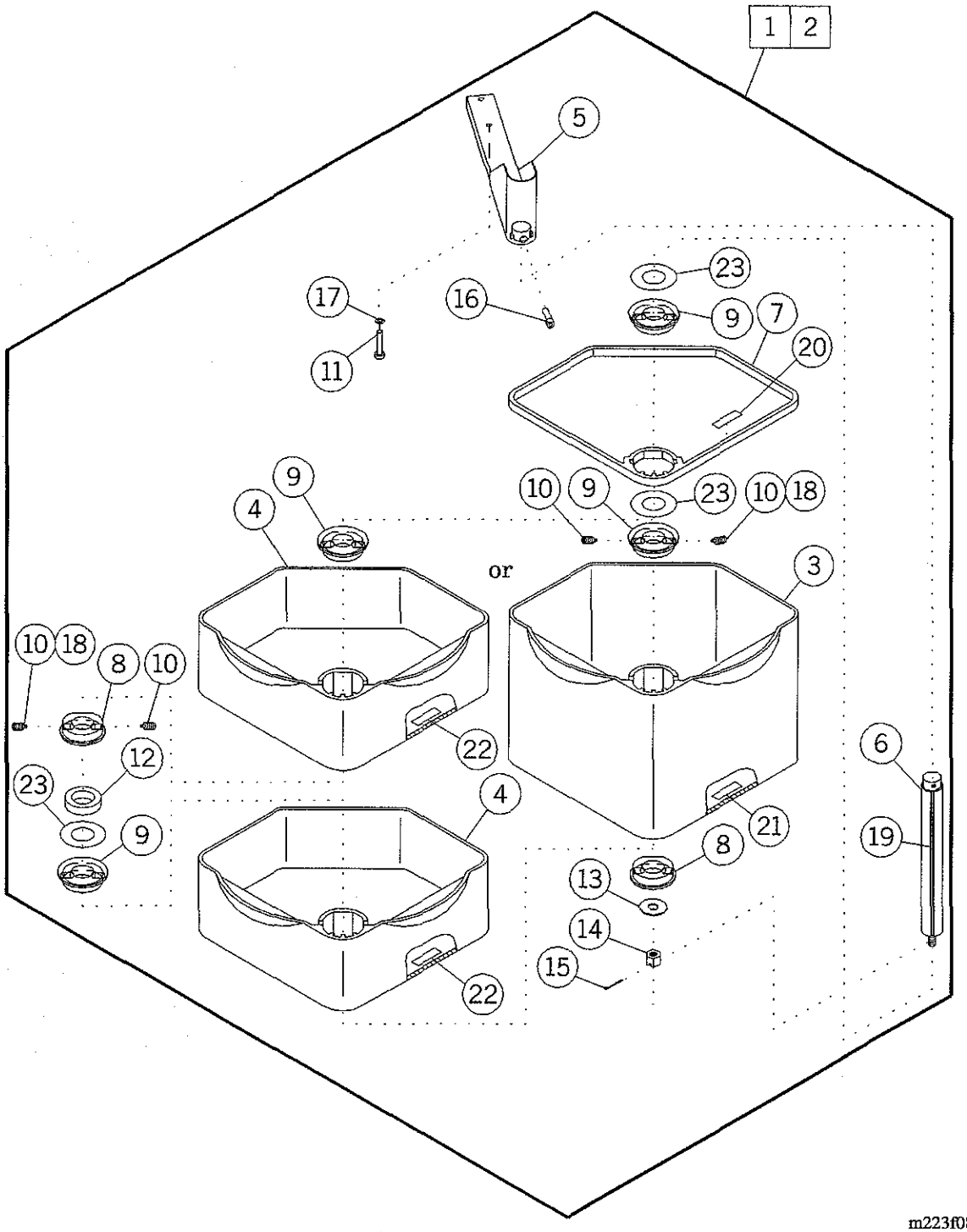


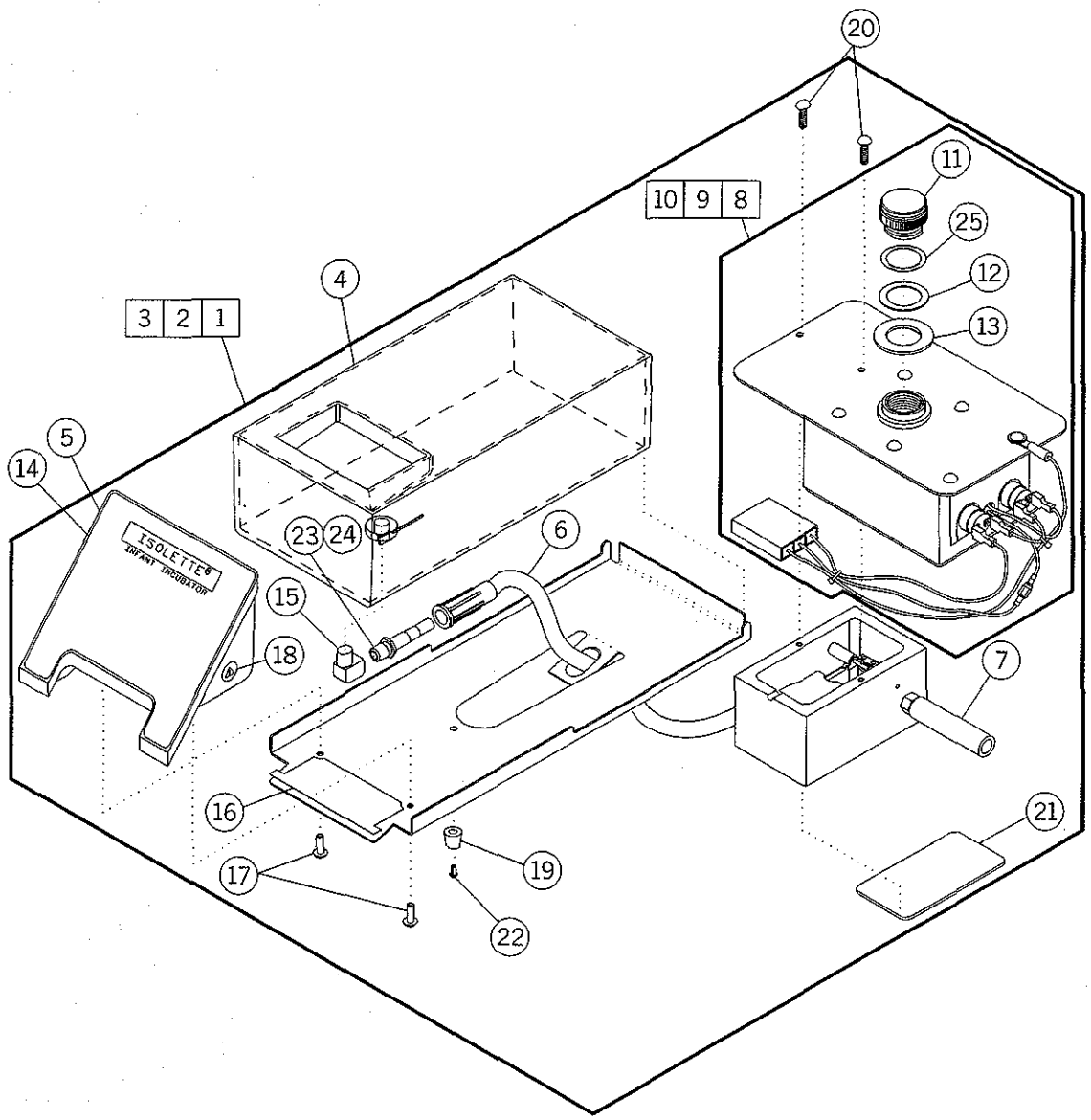
Table 5-39. Swivel Drawer Assembly (Accessory)

Item Number	Part Number	Quantity	Description
1	83 441 00	1	Swivel drawer assembly, small
2	83 440 00	1	Swivel drawer assembly, large
3	83 440 01	1	Large swivel drawer (large swivel drawer assembly only)
4	83 441 01	2	Small swivel drawer (small swivel drawer assembly only)
5	83 440 06	1	Support arm, swivel drawer
6	83 440 05	1	Shaft, swivel drawer
7	83 440 02	1	Tray writing surface
8	83 440 08	1 or 2	Ring, bottom, swivel drawer
9	83 440 07	2 or 3	Ring, top, swivel drawer
10	83 440 09	6 or 10	Spring plunger, 3/8-16
11	99 057 32	2	Screw, ¼"-20 x 7/8" cap nylock
12	83 440 03	1	Spacer, 1¼" inner diameter, 2" outer diameter, 0.49" thick (small swivel drawer assembly only)
13	99 127 78	1	Washer, flat, 0.536" inner diameter, 1½" outer diameter, 0.05" thick
14	99 113 66	1	Nut, hex, ½"-20
15	99 141 71	1	Pin, cotter, 0.06" diameter, 1" long
16	99 055 06	1	Screw, ¼"-20 x 3/8" cap nylock
17	99 125 71	2	Washer, lock, external, ¼"
18	Reference only	As required	Loctite®[a] adhesive #271-05
19	Reference only	As required	Lubricant
20	83 500 60	1	Label, load limit, 2 lb/0.91 kg
21	83 500 62	1	Label, load limit, 10 lb/4½ kg (large swivel drawer assembly only)
22	83 500 61	2	Label, load limit, 5 lb/2.2 kg (small swivel drawer assembly only)
23	83 440 04	2 or 3	Washer, 1¼" inner diameter, 2½" outer diameter, 0.015" thick

a. Loctite® is a registered trademark of Loctite Corporation.

Humidity System (Accessory)

Figure 5-38. Humidity System (Accessory)



m223f080

Table 5-40. Humidity System (Accessory)

Item Number	Part Number	Quantity	Description
1	83 610 70	1	Humidity system assembly, 120V (120V model only)
2	83 610 80	1	Humidity system assembly, 240V, English/Spanish/French/German/Italian (240V model only)
3	83 610 90	1	Humidity system assembly, 100V (100V model only)
4	83 900 10	1	Replacement kit, humidity reservoir
5	83 610 03	1	Door, humidity
6	83 612 04	1	Tubing, with ends ¼" inner diameter, 24" long
7	83 611 70-R	1	Replacement housing/float assembly
8	83 612 50-R	1	Evaporator reservoir assembly, 120V (120V model only)
9	83 612 51	1	Evaporator reservoir assembly, 240V (240V model only)
10	83 612 52	1	Evaporator reservoir assembly, 100V (100V model only)
11	83 612 37	1	Cap, evaporator
12	83 610 17	1	Washer, flat, 1.29" outer diameter, 0.88" inner diameter, 0.15" thick
13	83 610 18	1	Washer, flat, 2" outer diameter, 0.99" inner diameter, 0.6" polypropylene
14	83 500 06	1	Overlay, humidity drawer, English/ Spanish/French/German/Italian
15	83 612 03	1	Elbow, street, 1/8" nickel plated
16	83 610 04	1	Trim, humidity tray
17	99 023 03	2	Screw, #6-32 x 5/16" truss phillips nylock
18	83 500 34	2	Label, manual reference symbol
19	26 605 00	1	Bumper, rubber, recessed (with washer)
20	99 023 05	2	Screw, #6-32 x 5/16" pan phillips, sems
21	Reference only	1	Detail, P.C. board, humidity
22	99 010 67	1	Screw, #4-40 x ¼" truss phillips nylock
23	83 612 02	1	Connector, 1/8"—¼" hose, nickel plated

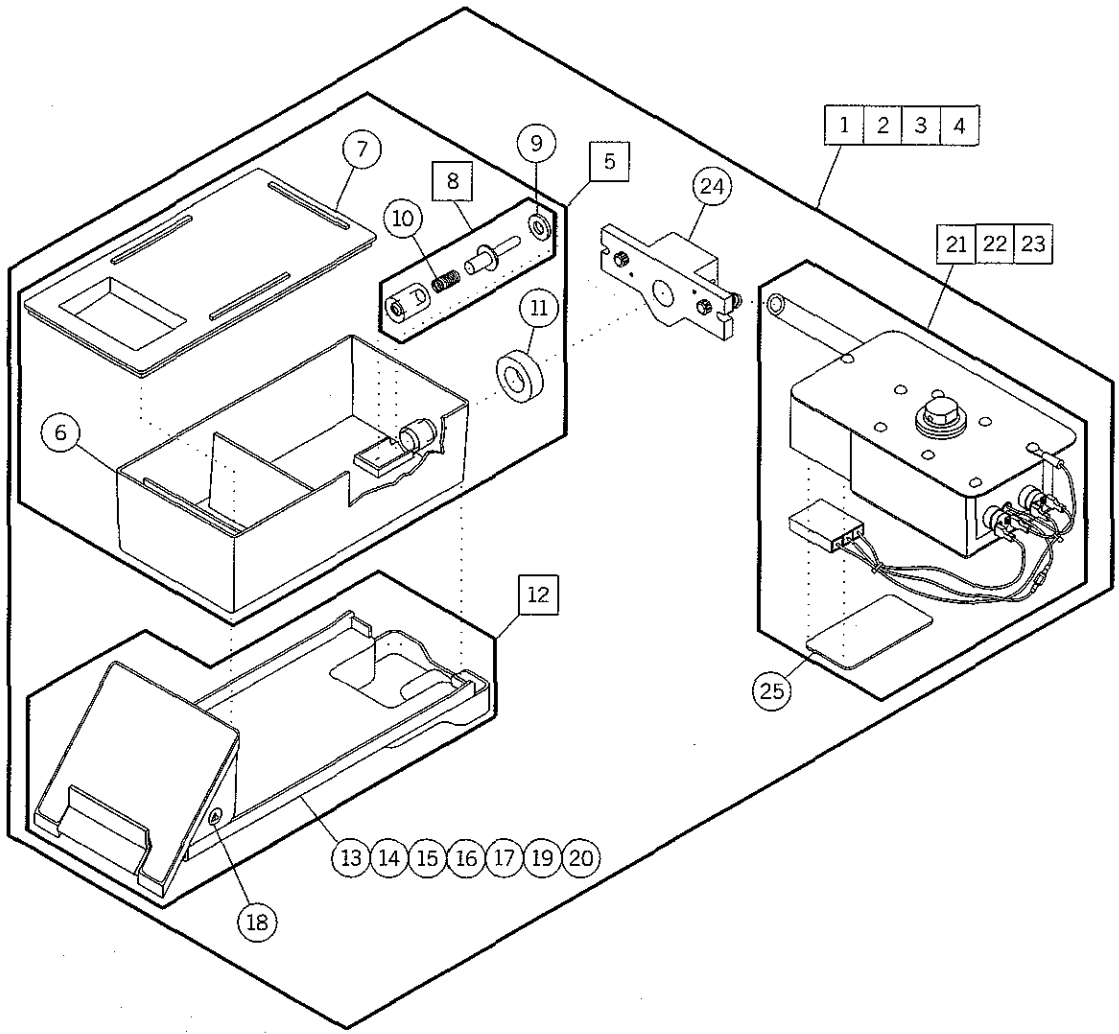
Item Number	Part Number	Quantity	Description
24	Reference only	As required	Loctite®[a] adhesive #592
25	99 161 53	1	O-ring, 1 1/16" 1/8"

a. Loctite® is a registered trademark of Loctite Corporation.

NOTES:

Humidity System (Accessory) ("02" Series Model Only)

Figure 5-39. Humidity System (Accessory) ("02" Series Model Only)



m223f078

Table 5-41. Humidity System (Accessory) ("02" Series Model Only)

Item Number	Part Number	Quantity	Description
1	83 613 70	1	Humidity system, 120V (120V model only)
2	83 613 80	1	Humidity system, 240V, English/ Spanish/French/German/Italian (240V model only)
3	83 613 81	1	Humidity system, 240V, Swedish/Greek (240V model only)
4	83 613 90	1	Humidity system, 100V (100V model only)
5	83 613 65-R	1	Reservoir assembly, humidity
6	83 613 01	1	Reservoir, humidity
7	83 613 00	1	Cover, humidity reservoir
8	83 900 58	1	Replacement kit, seals and spring
9	83 613 06	1	Seal, silicone sponge, ¾" outer diameter
10	83 613 10	1	Spring, compression, 0.36", 0.035" wide, 0.812" long
11	83 613 21	1	Seal, silicone sponge, 1.38" outer diameter
12	83 613 68-R	1	Tray assembly, humidity, English/ Spanish/French/German/Italian
13	83 613 02	1	Tray, humidity reservoir
14	83 613 13	1	Door, humidity
15	83 500 06	1	Overlay, humidity drawer, English/ Spanish/French/German/Italian
16	83 500 09	1	Overlay, humidity drawer, Swedish/ Greek
17	99 023 46	1	Screw, #6-32 x 3/8" flat phillips nylock
18	83 500 34	2	Label, manual reference symbol
19	83 613 23	1	Handle, humidity
20	83 613 24	1	Pin, 3/32" diameter, 2.968" large
21	83 613 55	1	Replacement kit, evaporator reservoir, 120V (120V model only)
22	83 613 56	1	Replacement kit, evaporator reservoir, 240V (240V model only)

Item Number	Part Number	Quantity	Description
23	83 613 57	1	Replacement kit, evaporator reservoir, 100V (100V model only)
24	83 613 60-R	1	Manifold assembly, humidity
25	81 001 01	1	Label, data tag, 1.63" x 3.00"

NOTES:

Evaporator Reservoir Assembly ("02" Series Model Only)

Figure 5-40. Evaporator Reservoir Assembly ("02" Series Model Only)

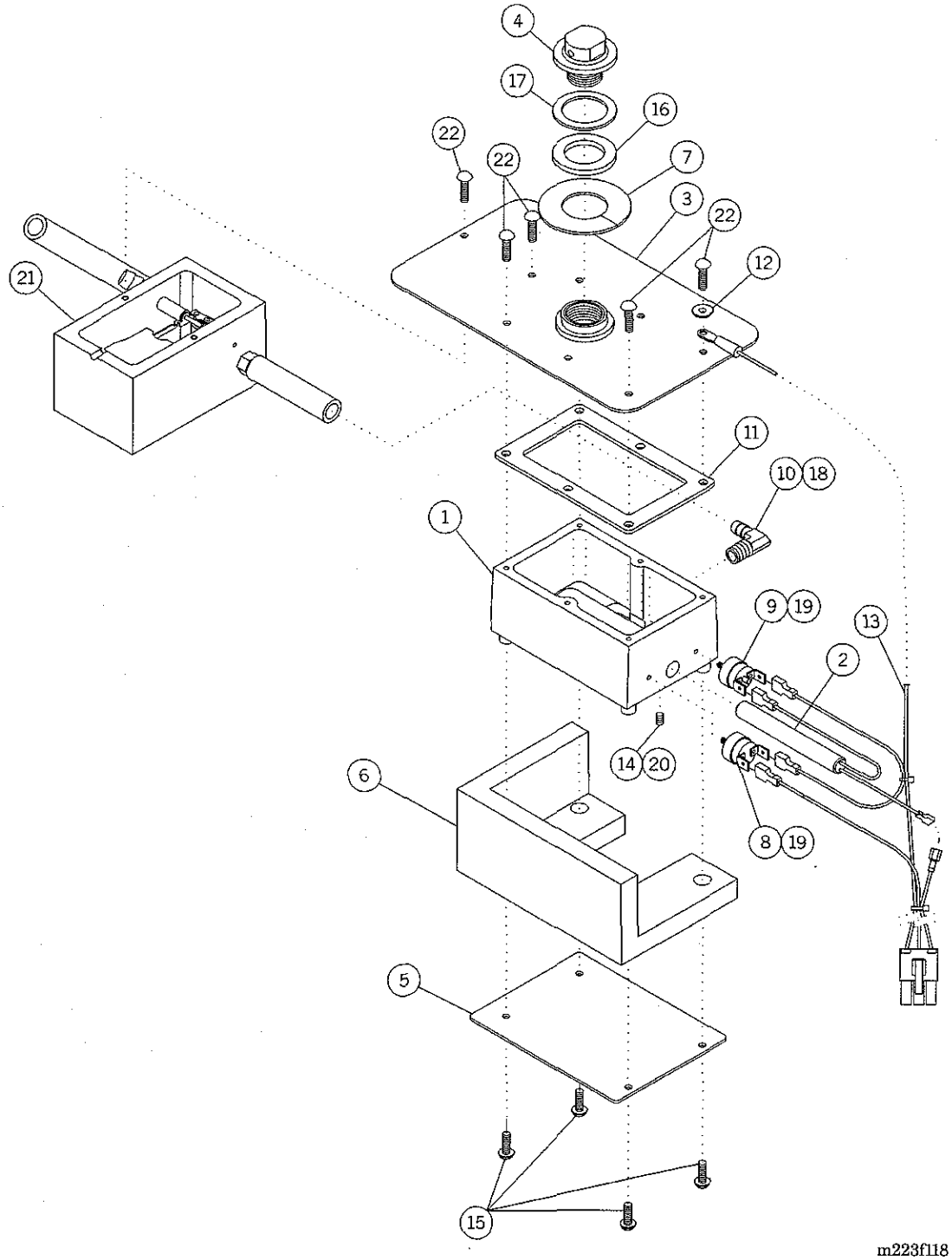


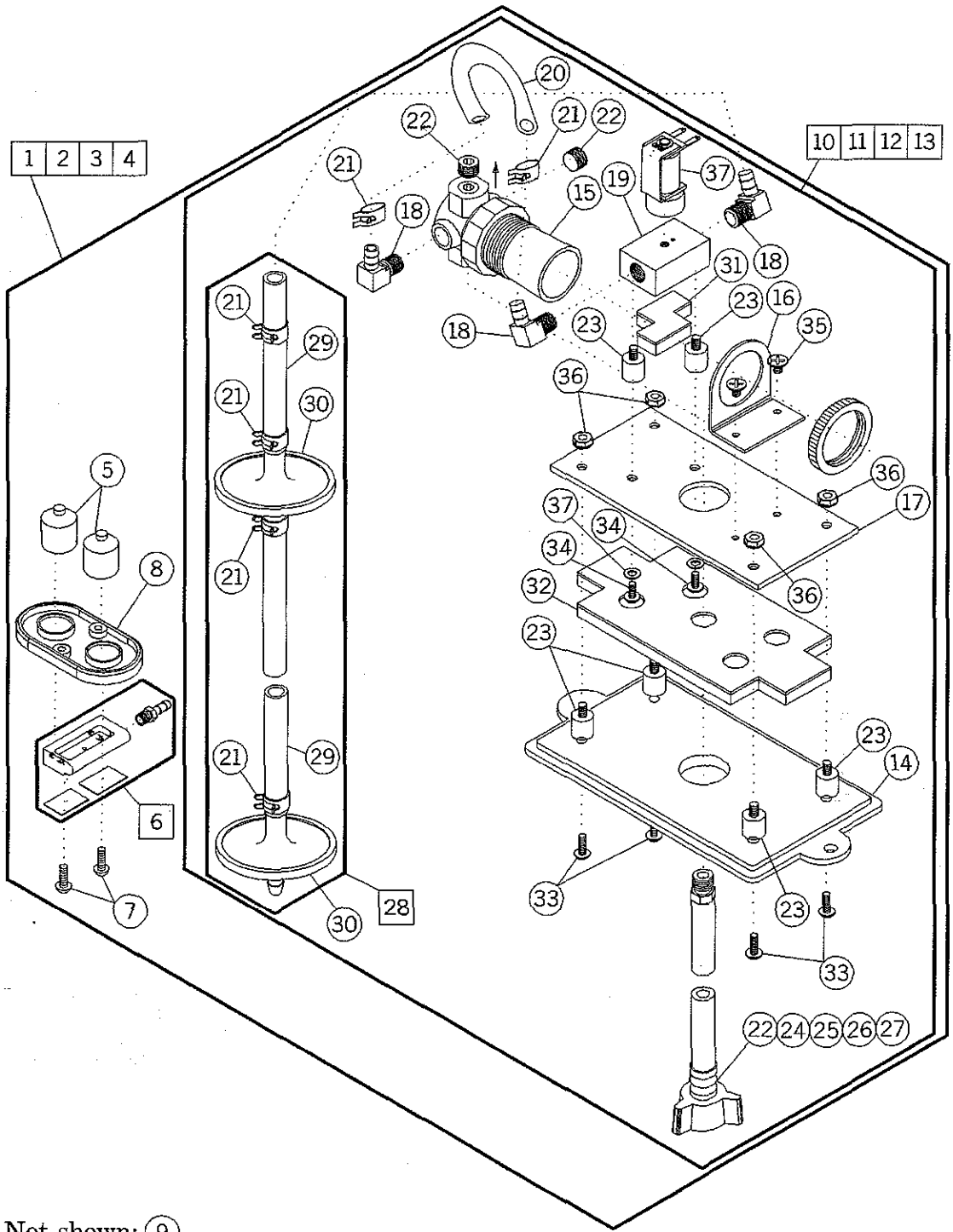
Table 5-42. Evaporator Reservoir Assembly ("02" Series Model Only)

Item Number	Part Number	Quantity	Description
1	83 613 25	1	Reservoir, evaporator
2	83 612 35	1	Heater, cartridge, 120V 100 w
3	83 613 27	1	Plate, mounting, evaporator and float housing
4	83 612 47	1	Cap, evaporator, stainless steel
5	83 612 39	1	Plate, mounting, insulation
6	83 613 32	1	Insulation, evaporator reservoir
7	83 613 40	1	Washer, flat, 2.00" outer diameter, 0.06" thick polypropylene
8	83 612 42	1	Thermostat, automatic, 125C OP/75C
9	83 612 43	1	Thermostat, manual reset limiter (150C)
10	83 612 38	1	Elbow, 3/8" barb—¼", brass
11	83 613 28	1	Gasket, evaporator reservoir
12	99 122 20	1	Washer, lock, external, #6 stainless steel
13	83 612 30	1	Cable assembly, humidity heater to AC
14	99 022 17	1	Screw, #6-32 x 1/8", set socket cap
15	99 023 03	4	Screw, #6-32 x 5/16" truss phillips nylock
16	83 613 33	1	Washer, flat, 1.38" outer diameter x 0.88" inner diameter x 0.12" thick, silicone
17	83 610 17	1	Washer, flat, 1.29" outer diameter 0.88" inner diameter, 0.15" thick stainless steel
18	99 901 23	As required	Pipe sealant with Teflon®[a] (Loctite®[b] #592)
19	99 901 98	As required	Sealant, pneumatic/hydraulic, Loctite® #54505
20	99 901 38	As required	Loctite®, screwlock #222
21	83 611 71-R	1	Replacement housing/float assembly
22	99 023 31	8	Screw, #6-32 x 3/8" truss phillips

a. Teflon® is a registered trademark of E. I. du Pont and de Nemours and Company.
b. Loctite® is a registered trademark of Loctite Corporation.

Oxygen System (Accessory)

Figure 5-41. Oxygen System (Accessory)



Not shown: (9)

m223f093

Table 5-43. Oxygen System (Accessory)

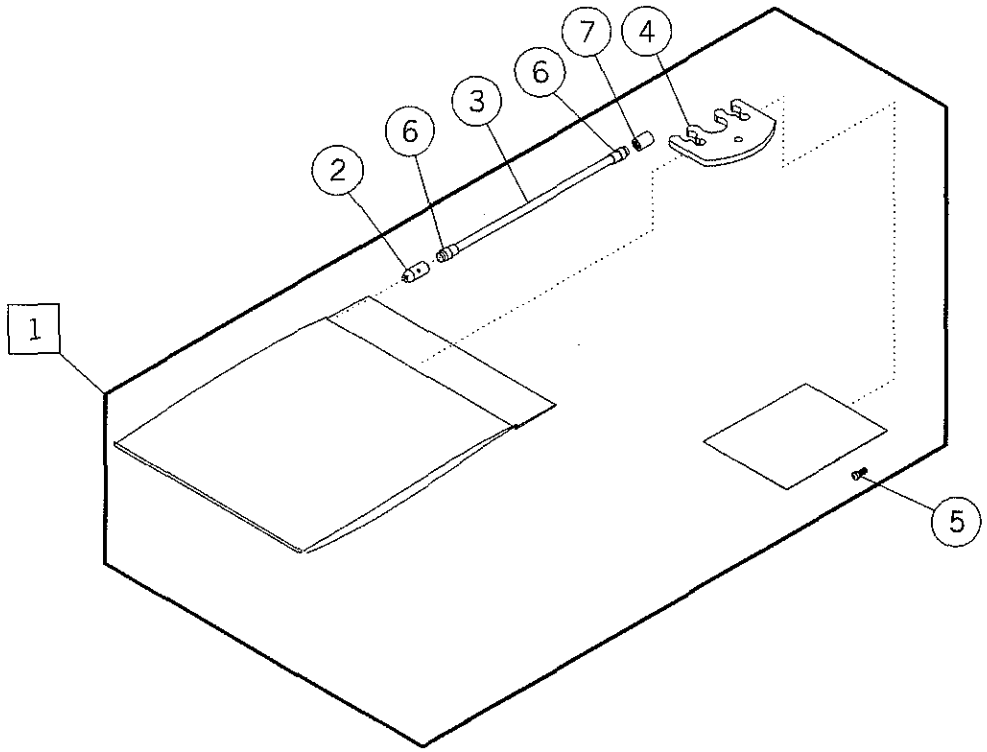
Item Number	Part Number	Quantity	Description
1	83 620 50	1	Oxygen assembly green Diameter Indexed Safety System (DISS)
2	83 620 51	1	Oxygen assembly green
3	83 620 52	1	Oxygen assembly white
4	83 620 53	1	Oxygen assembly blue
5	83 620 30	2	Cell, oxygen
6	83 620 55-R	1	Oxygen calibration fixture assembly
7	99 031 99	2	Screw, #8-32 x ½", truss phillips nylock
8	83 620 45	1	Plate, oxygen cell mounting
9	83 620 56	1	Hook, oxygen hose
10	83 620 60	1	Oxygen control valve assembly, green DISS
11	83 621 20	1	Oxygen control valve assembly, green
12	83 621 21-R	1	Oxygen control valve assembly, white
13	83 621 22	1	Oxygen control valve assembly, blue
14	83 100 11	1	Door, access, pneumatic module
15	83 620 61	1	Regulator, pressure, 40 psi
16	83 620 62	1	Bracket, regulator
17	83 620 63	1	Plate, mounting
18	20 102 10	3	Elbow, 90°, ¼" hose—1/8"
19	83 620 67	1	Block, solenoid mount
20	83 620 69	6" (15 cm)	Hose, braided, polyvinyl chloride (PVC), clear, ¼" inner diameter
21	83 620 64	6	Clamp, hose, 0.46"-0.545" inner diameter
22	99 900 26	As required	Tape, pipe junction seal, Teflon®[a], ½"
23	68 230 24	6	Isolator, vibration, 0.44" outer diameter, 0.44" long, 4 lb
24	83 620 40	1	Oxygen hose, green DISS
25	83 620 41	1	Oxygen hose, green
26	83 620 42	1	Oxygen hose, white
27	83 620 43	1	Oxygen hose, blue

a. Teflon® is a registered trademark of E. I. du Pont and de Nemours and Company.

Item Number	Part Number	Quantity	Description
28	83 900 22	1	Retrofit kit, dual filter, oxygen control valve
29	83 612 41	17" (43 cm)	Tubing, ¼" inner diameter, 7/16" outer diameter silicone
30	83 620 57	2	Filter, suction, disposable, rectangle
31	83 620 66	1	Sound coat, solenoid mounting block
32	83 620 68	1	Sound coat, mounting plate
33	99 031 52	4	Screw, #8-32 x 3/8" truss phillips nylock
34	99 031 05	2	Screw, #8-32 x 5/16" truss phillips stainless steel
35	99 030 76	2	Screw, #8-32 x ¼" truss phillips nylock
36	99 106 32	4	Nut, hex, #8-32 keps
37	99 122 92	2	Washer, lock, internal, #8
38	17 751 37	1	Valve, solenoid, 12V DC, 70 psi, oxygen

Ventilator Tube Support (Accessory)

Figure 5-42. Ventilator Tube Support (Accessory)



m223f081

Table 5-44. Ventilator Tube Support (Accessory)

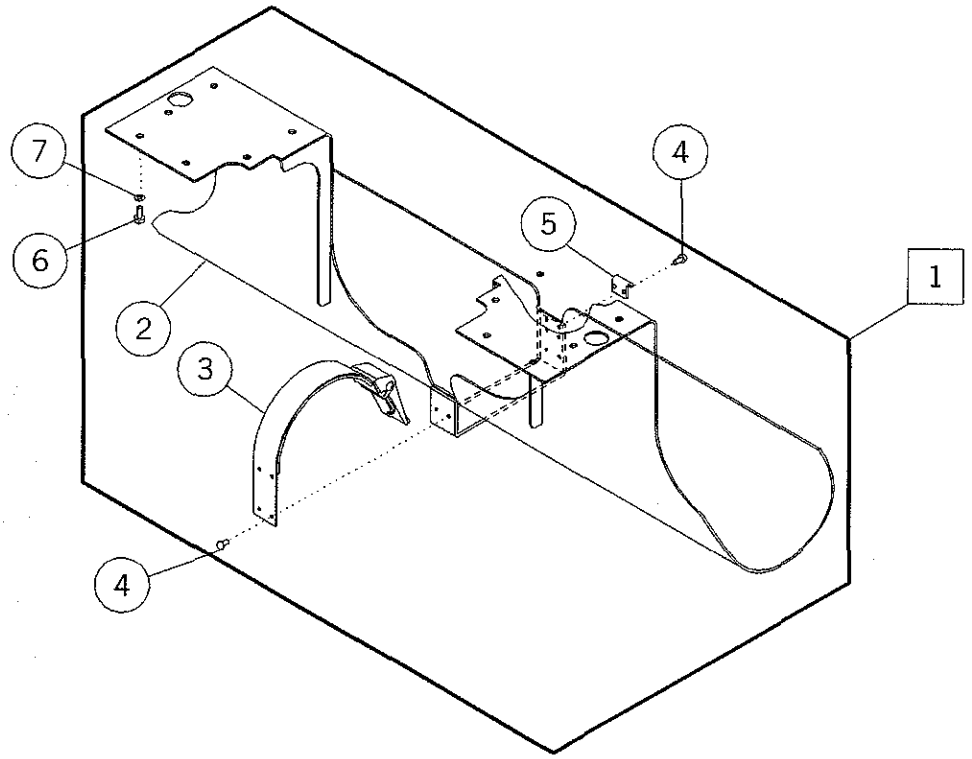
Item Number	Part Number	Quantity	Description
1	83 001 05	1	Ventilator tube support
2	68 252 08	1	Pin, ball detent, modified
3	68 252 02	1	Tubing, flexible
4	68 252 04	1	Tubing, hanger
5	99 031 99	1	Screw, #8-32 x ½", truss phillips nylock
6	99 901 77	As required	Loctite®[a] adhesive #242
7	83 001 06	1	Tubing, flexible

a. Loctite® is a registered trademark of Loctite Corporation.

5

Oxygen Tank Bracket (Accessory)

Figure 5-43. Oxygen Tank Bracket (Accessory)



m223f049

Table 5-45. Oxygen Tank Bracket (Accessory)

Item Number	Part Number	Quantity	Description
1	83 443 00	1	Oxygen tank bracket assembly
2	83 443 03	1	Support, tank, variable height adjustable
3	83 443 04	1	Clamp assembly, tank
4	99 022 83	4	Screw, #6-32 x ¼" pan phillips, sems
5	24 144 01	1	Hook, latch, modified
6	99 042 03	12	Screw, #10-32 x ½" cap hex
7	99 123 92	12	Washer, lock, internal, #10

Chapter 6
General Procedures

Chapter Contents

Cleaning . . . . . 6 - 3
General Cleaning . . . . . 6 - 3
Steam Cleaning . . . . . 6 - 4
Cleaning Hard to Clean Spots . . . . . 6 - 4
Disinfecting . . . . . 6 - 4
Using Cleaning Agents . . . . . 6 - 4
Skin Temperature Probe . . . . . 6 - 4
Access Door Gaskets and Tubing Access Ports . . . . . 6 - 4
Humidity Tray Reservoir . . . . . 6 - 5
Controller, Shell, and Pedestal Stand . . . . . 6 - 5
Hood, Sensor Module, and Inner Walls . . . . . 6 - 5
Heater Radiator and Fan Impeller . . . . . 6 - 7
Mattress Tray, Main Deck, Heater/Impeller Cover, and Mattress Tilt Bars 6 - 7
Air Intake Microfilter . . . . . 6 - 7
Disassembly . . . . . 6 - 7
Assembly . . . . . 6 - 13
Component Handling . . . . . 6 - 15
P.C. Board . . . . . 6 - 15
Lubrication Requirements . . . . . 6 - 16
Preventive Maintenance . . . . . 6 - 17
Preventive Maintenance Schedule . . . . . 6 - 18
Preventive Maintenance Checklist . . . . . 6 - 19
Installation and Set-up . . . . . 6 - 20

6

Unpacking . . . . . 6 - 20
Assembling . . . . . 6 - 20
Setting Up . . . . . 6 - 22
Oxygen Sensor Calibration . . . . . 6 - 24
Room Air—21% Oxygen . . . . . 6 - 24
100% Oxygen . . . . . 6 - 25
Oxygen Concentration Test . . . . . 6 - 27
Weighing Scale Calibration . . . . . 6 - 28
Current Leakage Test . . . . . 6 - 29
Set-Up . . . . . 6 - 29
Procedure . . . . . 6 - 29
Tool and Supply Requirements . . . . . 6 - 30

Cleaning

WARNING:
Follow the product manufacturer's instructions. Failure to do so could result in personal injury or equipment damage.

WARNING:
Make sure that the oxygen supply to the incubator is turned off and that the incubator is disconnected from the oxygen supply when performing cleaning procedures. A fire and explosion hazard exists when cleaning in an oxygen-enriched environment.

SHOCK HAZARD:
Unplug the unit from its power source. Failure to do so could result in personal injury or equipment damage.

SHOCK HAZARD:
Do not expose the unit to excessive moisture. Personal injury or equipment damage could occur.

CAUTION:
Do not use harsh cleansers, solvents, or detergents. Equipment damage could occur.

At a minimum, thoroughly clean and disinfect the incubator upon discharge of an infant. However, depending on individual facility policy, perform this as often as daily, if desired. The most effective way to clean is to first disassemble, and then group the parts and/or assemblies in categories according to the method of cleaning required.

General Cleaning

We recommend that you clean the unit with detergent and warm water. Do not use excessive liquid or harsh cleansers.

Steam Cleaning

Do not use any steam cleaning device on the unit. Excessive moisture can damage mechanisms in this unit.

Cleaning Hard to Clean Spots

To remove difficult spots or stains, we recommend that you use standard household cleansers and a soft bristle brush. To loosen heavy, dried-on soil, you may first need to saturate the spot.

Disinfecting

When there is visible soilage and also between patient use, we recommend that you disinfect the unit using an EPA registered (US only), tuberculocidal, cleanser/disinfectant.

Dilute and use the disinfectant as specified on the manufacturer's label.

Using Cleaning Agents

Use an intermediate-level cleanser/disinfectant registered by the US Environmental Protection Agency (EPA) (US only), but only after the incubator is empty and disassembled. After removing all solid wastes and contaminants from the disassembled parts, clean them as follows:

Skin Temperature Probe

Use an EPA-registered cleanser/disinfectant to thoroughly clean all surfaces, and then dry with a clean cloth or paper towel.

Access Door Gaskets and Tubing Access Ports

Place the access door gaskets and tubing access ports into a suitable container filled with a cleanser/disinfectant.

Allow them to soak as recommended by the cleaning solution's manufacturer, and then remove them and dry completely with a clean cloth or paper towel.

CAUTION:
Some chemical cleaning agents may be conductive and/or leave a residue that may permit a build-up of dust or dirt, which may be conductive. Do not permit cleaning agents to contact electrical components. Do not spray cleaning solutions onto any of these surfaces.

Humidity Tray Reservoir

The humidity tray reservoir can be sterilized via liquid sterilization or steam under pressure. Make sure that the lid is not on the reservoir.

Controller, Shell, and Pedestal Stand

Use an EPA-registered cleanser/disinfectant to clean all surfaces thoroughly; then dry with a clean cloth or paper towel.

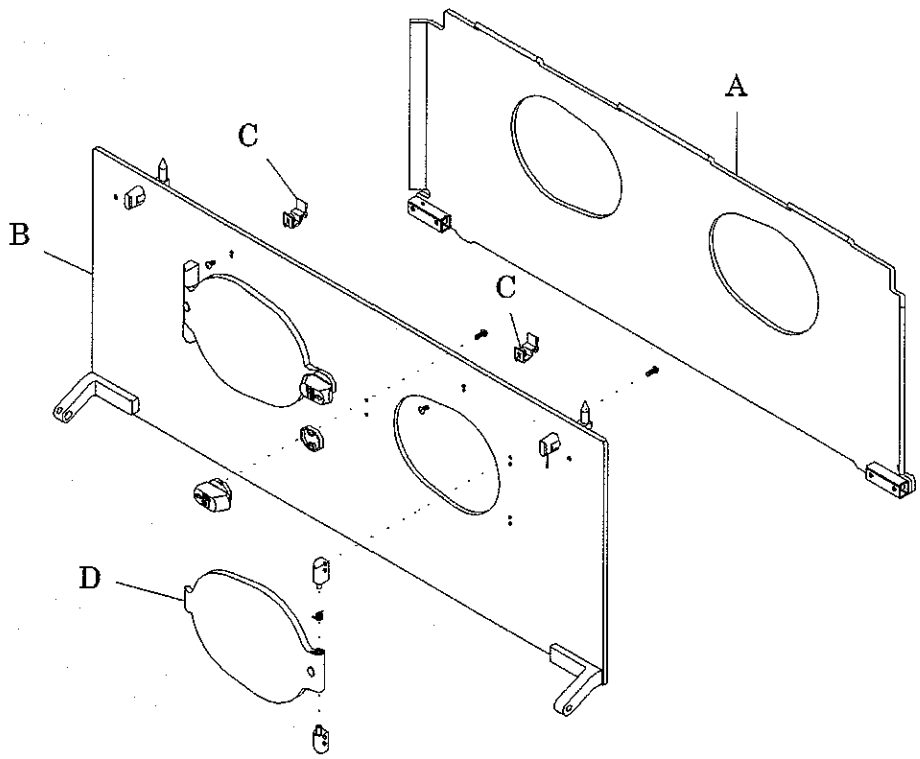
In addition, check for fluids that may have dripped onto the bottom surface of the humidity tray opening. If fluids are present, use a clean paper towel dampened with a cleanser/disinfectant to wipe the surface dry.

CAUTION:
When cleaning the interior of the incubator shell, care must be taken to prevent liquids from entering the motor shaft opening. Equipment damage could occur.

Hood, Sensor Module, and Inner Walls

The inner walls (A) are hinged on the access panels (B) or rear wall of the incubator. Release the inner wall (A) by pressing on the catches (C) located at the top of the inner wall (A) (see figure 6-1 on page 6-6).

Figure 6-1. Releasing the Inner Wall



m223f074

Use an EPA-registered detergent/disinfectant to clean all surfaces of the hood thoroughly, including the sensor module, inner walls (A), and access doors (D). Make sure to clean all holes and indentations; then dry with a clean cloth or paper towel.

CAUTION:
Alcohol can cause crazing of the clear acrylic hood. Do not use alcohol for cleaning.

CAUTION:
Do not expose the hood assembly to direct radiation from germicidal lamps. Ultraviolet radiation from these sources can cause cracking of gaskets, fading of paint, and crazing of the clear acrylic hood.

Heater Radiator and Fan Impeller

CAUTION:
Failure to clean the heater radiator and fan impeller could result in sufficient lint build-up to reduce airflow, which will affect temperature control and cause high oxygen concentrations.

Remove any lint build-up on the heater radiator and fan impeller.

Mattress Tray, Main Deck, Heater/Impeller Cover, and Mattress Tilt Bars

Use a detergent/disinfectant to clean all surfaces thoroughly; then dry with a clean cloth or paper towel.

Air Intake Microfilter

Do not attempt to clean or reverse the microfilter. Replace it if visibly dirty or older than 3 months. Before installing a new filter, clean the microfilter chamber and its cover with a cleanser/disinfectant.

WARNING:
A dirty inlet filter may affect oxygen concentration and/or cause carbon dioxide build-up. Be sure the filter is checked on a routine basis commensurate with local conditions. Particularly, if the incubator is used in an unusually dusty environment, more frequent replacements may be necessary.

Disassembly

NOTE:
For routine cleaning, there is no need to separate the hood/base assembly from the pedestal stand. If separation is necessary, refer to "Installation and Set-up" on page 6-20.

1. Disconnect the cables from the sensor module, and slowly raise the hood.

CAUTION:
Before lifting the incubator hood for cleaning, ensure that all mounted accessories have been removed to prevent possible interference with the raised hood.

2. Remove the x-ray tray (E) from the mattress tray (F) (see figure 6-2 on page 6-9).

3. If the incubator is equipped with a weighing scale, remove the scale from the unit before removing the mattress tray (F).
   a. Disconnect the scale/sensor module cable (G) from the sensor module (H).
   b. Remove the cable (G) from the clamps (I) that hold it to the incubator wall.
   c. Lift the scale out of the incubator.

4. Remove the mattress tray (F).

5. Remove the mattress tilt bars (J).

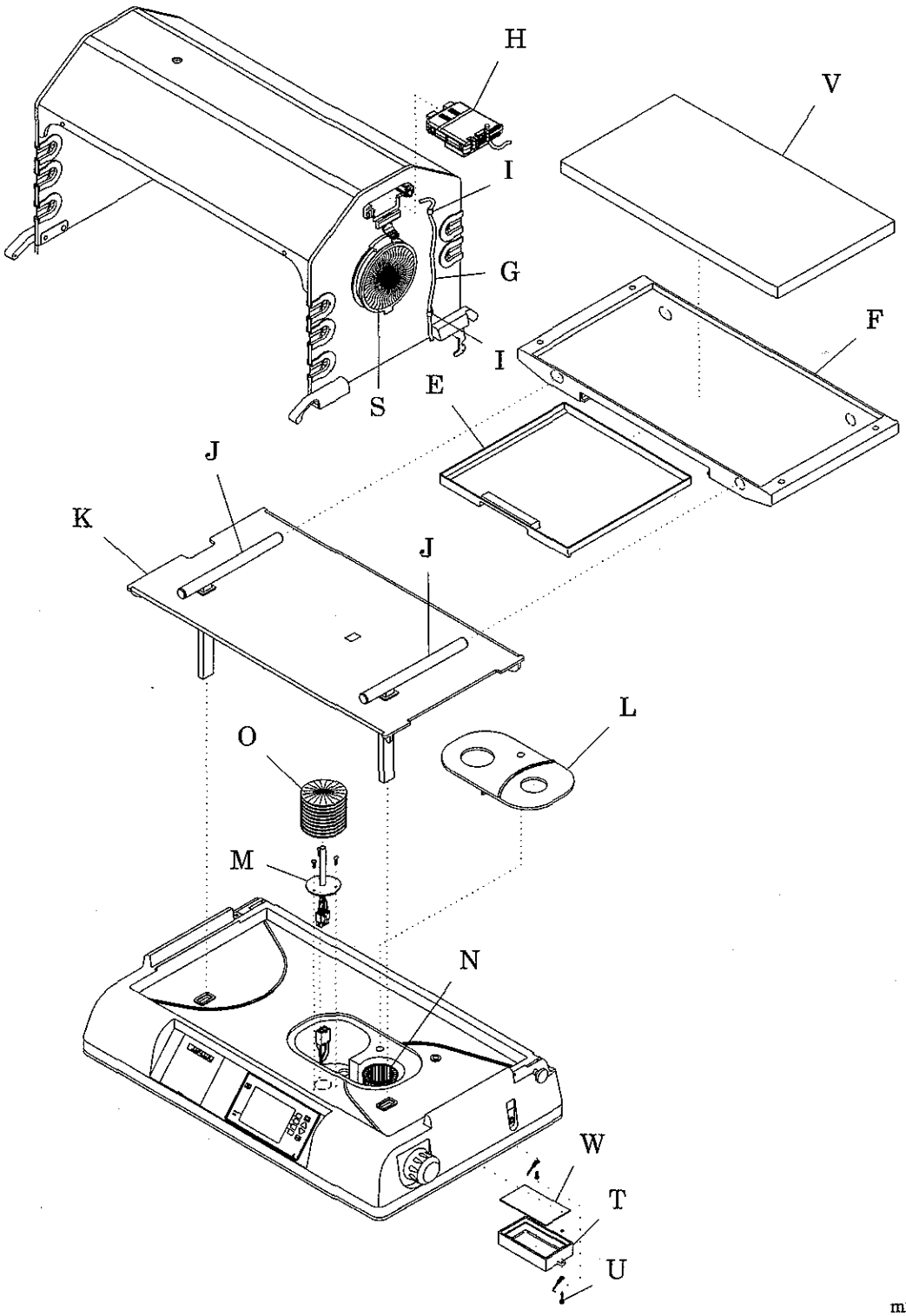
6. Remove the main deck (K).

7. Remove the heater/impeller cover (L).

WARNING:
The heater can be sufficiently hot to cause burns; avoid removing or touching the heater until the unit has been switched off for at least 45 minutes.

8. After the heater (M) has cooled for 45 minutes, remove it and the impeller (N).
   a. Remove the heater radiator (O).
   b. Pull the impeller (N) off the motor shaft.

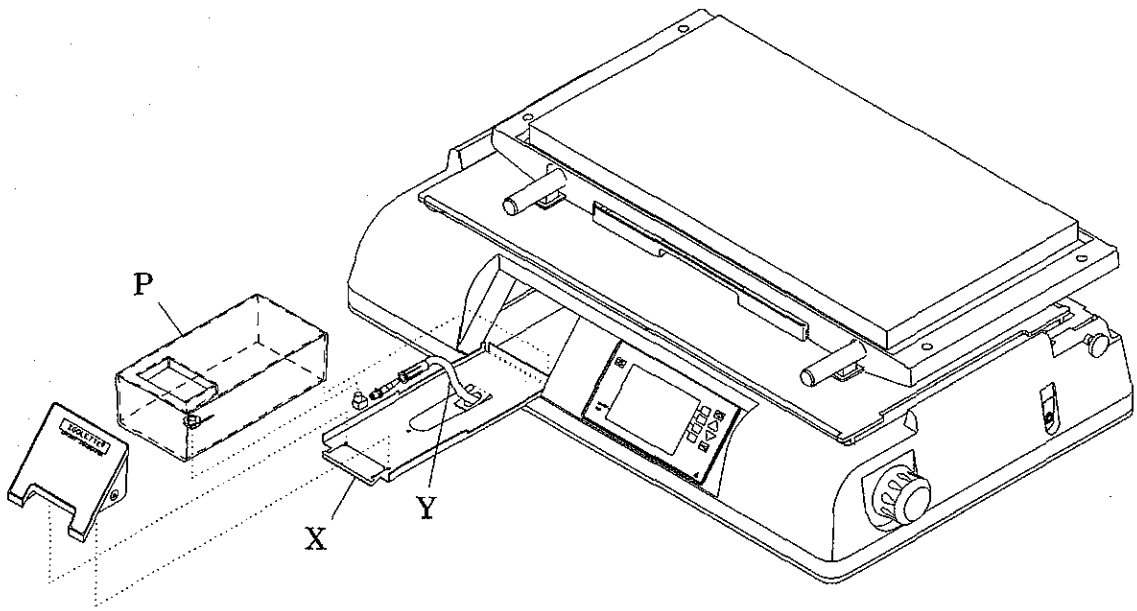
Figure 6-2. Hood/Shell Assembly



6

9. For "00" and "01" series humidity tray models, perform the following:
   a. Remove the humidity tray (X) from the front of the incubator first by withdrawing it to the fill position, then raising up, and withdrawing it until it stops again (see figure 6-3 on page 6-10).

Figure 6-3. Removing the Humidity Tray Reservoir ("00" and "01" Series Humidity Tray Models Only)

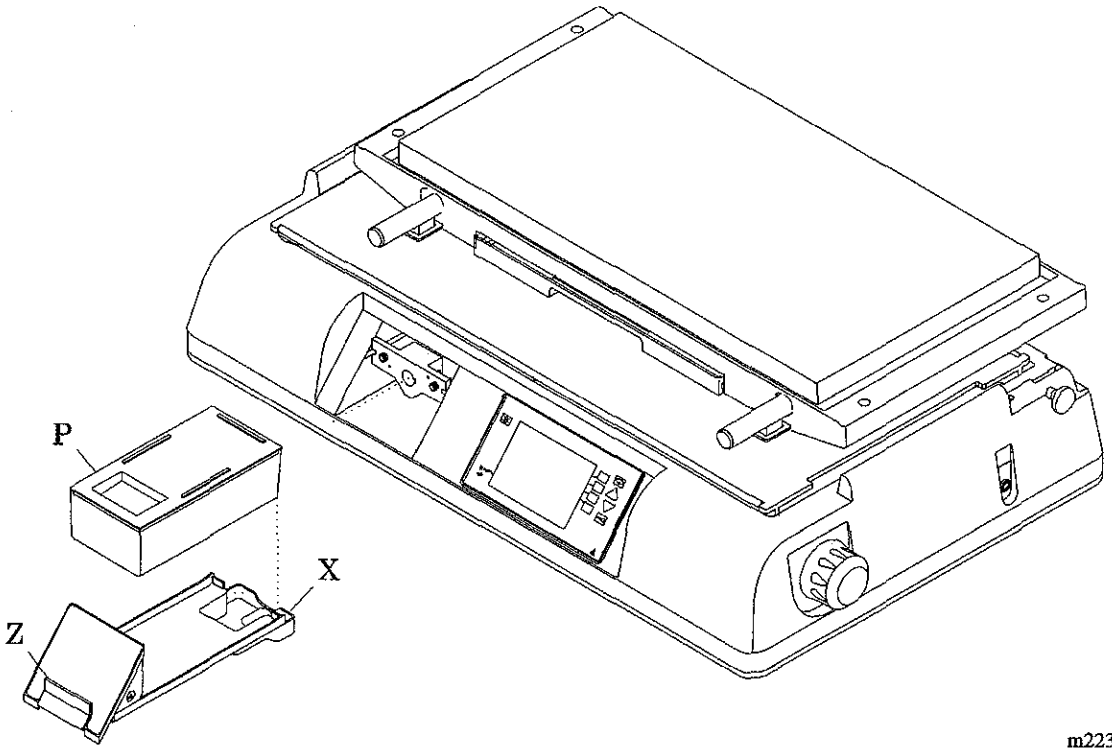


m223f090

   b. Stand the plastic reservoir (P) upright on the tray (X), and disconnect the hose (Y) from the plastic reservoir (P).
   c. Remove the plastic reservoir (P).

10. For the "02" series humidity tray model, perform the following:
   a. Remove the humidity tray (X) from the front of the incubator by pulling down on the handle (Z), and withdrawing it from the shell (see figure 6-4 on page 6-11).

Figure 6-4. Removing the Humidity Tray Reservoir ("02" Series Humidity Tray Model Only)

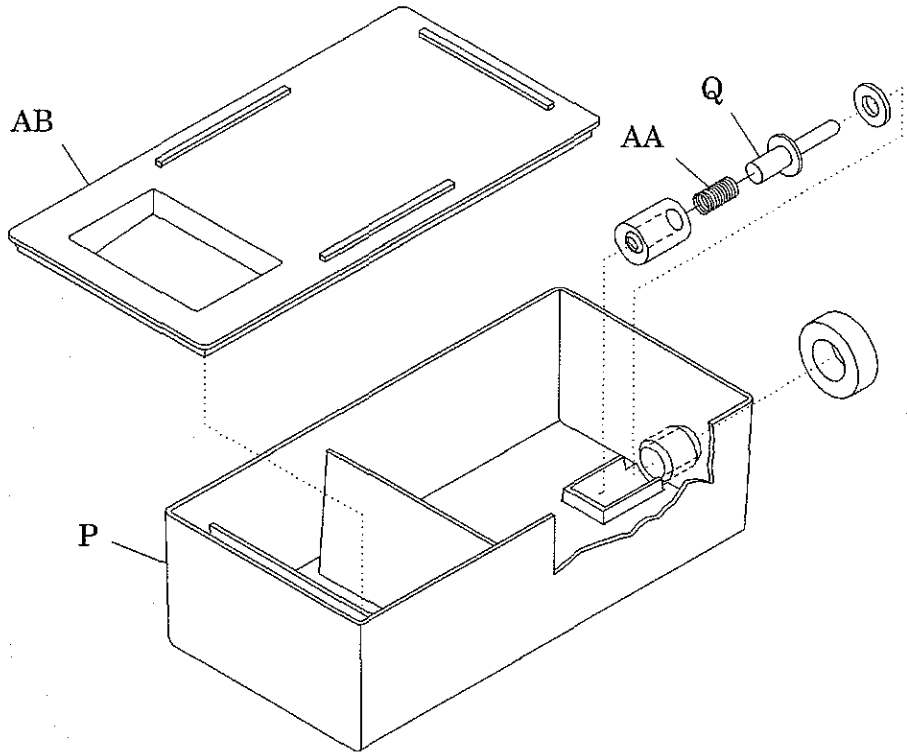


m223f089

b. Remove the reservoir (P) from the tray (X).

11. Remove the reservoir valve (Q) by compressing the ends and lifting up on the rear end (see figure 6-5 on page 6-12).

Figure 6-5. Reservoir Valve



m223f097

12. Dismantle the reservoir valve (Q), and place the components in the reservoir (P).

13. Remove the disposable access door (D) cuff from each access door (D) gasket by pulling it off from the outside; discard the cuffs (see figure 6-1 on page 6-6).

14. Remove the access door (D) gaskets from each side of the hood by pulling them free.

15. Remove the tubing access grommets from each side of the hood by pulling them free.

16. Remove the disposable iris entry port sleeves (S) by pulling each sleeve (S) off the retainer rings (see figure 6-2 on page 6-9). Wipe clean.

17. Remove the air intake microfilter cover (T) by loosening the two thumbscrews (U).

Assembly

NOTE:
Inspect all cleaned components for any breakage or cracks before assembling into the incubator. Harsh cleaning agents may harm some of the plastics used in the patient compartment.

1. Install the heater radiator (O) and fan impeller (N).
2. Install the heater/impeller cover (L).
3. Install the main deck (K).
4. Install the mattress tilt bars (J) on the main deck (K).
5. Install the mattress tray (F) and x-ray tray (E).
6. If the incubator is equipped with a weighing scale, connect the scale/sensor module cable (G) to the weight connector on the sensor module (H), and secure the scale/sensor module cable (G) to the incubator end wall using the cable clips (I) provided on the inside of the incubator wall.
7. Place a new disposable mattress cover over the mattress (V).
8. Place the mattress (V) onto the tray (F).
9. Install disposable iris entry port sleeves (S) (refer to procedure 4.8).
10. For "02" series humidity reservoir models, replace the valve (Q) in the humidity reservoir (P) (see figure 6-5 on page 6-12).
    a. Make sure the spring (AA) is in place.
    b. Put on the lid (AB), and place in the humidity tray (X) (see figure 6-4 on page 6-11).
    c. Replace the tray (X) and reservoir (P) in the shell.
11. Install the tubing access ports into the front and rear edges of each side of the hood. Replace if distorted or torn.
12. Install an access door (D) gasket on each access door (D) (see figure 6-1 on page 6-6).

NOTE:
If the incubator is to be gas sterilized, wait until after sterilization to install new cuffs.

13. Install a new access door (D) cuff onto each access door (D) gasket by stretching the larger diameter elastic band into the groove in the gasket.
    a. When installed correctly, the cuff has a small opening at its center.
    b. The access door (D) should latch with slight pressure, and should open when the latch lever (C) is depressed.
14. Install a new air intake microfilter (W) if it is discolored or dirty (see figure 6-2 on page 6-9).
    a. Install the air intake microfilter cover (T).
    b. Tighten the two thumbscrews (U).
15. Perform "Function Checks" on page 2-4 before returning the unit to service.

Component Handling

CAUTION:
To prevent component damage, ensure that your hands are clean, and **only** handle the P.C. board by its edges.

CAUTION:
When handling electronic components, wear an antistatic strap. Failure to do so could result in component damage.

CAUTION:
For shipping and storage, place the removed P.C. board in an antistatic protective bag. Equipment damage can occur.

P.C. Board

When servicing the P.C. board, follow good handling practices. Mishandling a P.C. board can cause the following:

- P.C. board damage
- Shortened P.C. board life
- Unit malfunctions

Observe the following P.C. board handling rules:

- Ensure that hands are clean and free of moisture, oily liquids, etc.
- **Only** handle the P.C. board by its outer edges.
- Do not touch the P.C. board components. Finger contact with the board surface and/or with its components can leave a deposit that will result in board (and component) deterioration.
- When working with electronics, wear an appropriate antistatic strap, and ensure that it is properly grounded.
- Service the removed P.C. board at a static-free workstation that is properly grounded.
- For shipping and storage, place the removed P.C. board in an antistatic protective bag.

Lubrication Requirements

WARNING:
Follow the product manufacturer's instructions. Failure to do so could result in personal injury or equipment damage.

CAUTION:
Do not use silicone-based lubricants. Equipment damage could occur.

Oilite®[1] bearings and bushings are utilized in several places on the system. By retaining oil, the pores give a self-lubricating quality to the bearings and bushings. If any silicone-based lubricant is applied to the bearings and bushings or anywhere else on the system, this self-lubricating quality is neutralized.

It is safe to apply the following lubricants to the system (see table 6-1 on page 6-16):

Table 6-1. Lubricants

Part Number	Description
8252 (100)	2 oz m-1 oil (apply to Oilite® bearings and bushings)
SA3351 (100)	4 oz lithium grease

1. Oilite® is a registered trademark of Beemer Precision, Incorporated.

Preventive Maintenance

WARNING:
Only facility-authorized personnel should perform preventive maintenance on the Isolette® Infant Incubator. Preventive maintenance performed by unauthorized personnel could result in personal injury or equipment damage.

WARNING:
Make sure that the oxygen supply to the incubator is turned off and that the incubator is disconnected from the oxygen supply when performing maintenance procedures. A fire and explosion hazard exists when performing maintenance procedures in an oxygen-enriched environment.

The Isolette® Infant Incubator requires an effective maintenance program. We recommend that you perform annual preventive maintenance (PM) and testing for Joint Commission on Accreditation of Healthcare Organizations (JCAHO) to help ensure a long, operative life for the Isolette® Infant Incubator. PM will minimize downtime due to excessive wear.

The following PM process guides you through a normal PM procedure on the Isolette® Infant Incubator. During this PM process, check each item on the schedule, and make the necessary adjustments.

Follow the PM schedule with the corresponding PM checklist. This checklist is designed to keep a running maintenance history and subsequent repair costs for one Isolette® Infant Incubator. However, your facility can modify this checklist or design another to fit your needs. Two effective ways to reduce downtime and ensure the patient remains comfortable are keeping close records and maintaining the Isolette® Infant Incubator.

Preventive Maintenance Schedule

Table 6-2. Preventive Maintenance Schedule

Function	Procedure
Overall performance	Verify that the unit is operating properly.
Patient compartment	Inspect the patient compartment for signs of breakage. Replace assemblies as necessary before placing the incubator into service.
Oxygen sensor cells	Replace both at the same time annually.

Preventive Maintenance Checklist

Table 6-3. Preventive Maintenance Checklist

Date			Function
Hill-Rom	Manufacturer		Overall performance
			Patient compartment
			Oxygen sensor cells
	Model Number		
	Serial Number		
	Total Cost for this Page		Labor Time:
			Repair Cost:
			Inspected by:
			Legend L=Lube C=Clean A=Adjust R=Repair or Replace O=Okay N=Not Applicable Remarks:

6.1 Installation and Set-up

Tools required: Phillips head screwdriver

Unpacking

Typically, the pedestal stand (or optional variable height adjustable pedestal stand) and the hood/shell assembly are shipped in separate cartons. When removing the equipment from the cartons, take care not to scratch or otherwise damage unprotected surfaces. Remove all packing materials from the shell assembly.

Assembling

1. Mount the hood/shell assembly (A) on the pedestal (B) using the four ¼"-20 x 1¾" nylock bolts (C) provided (see figure 6-6 on page 6-21).

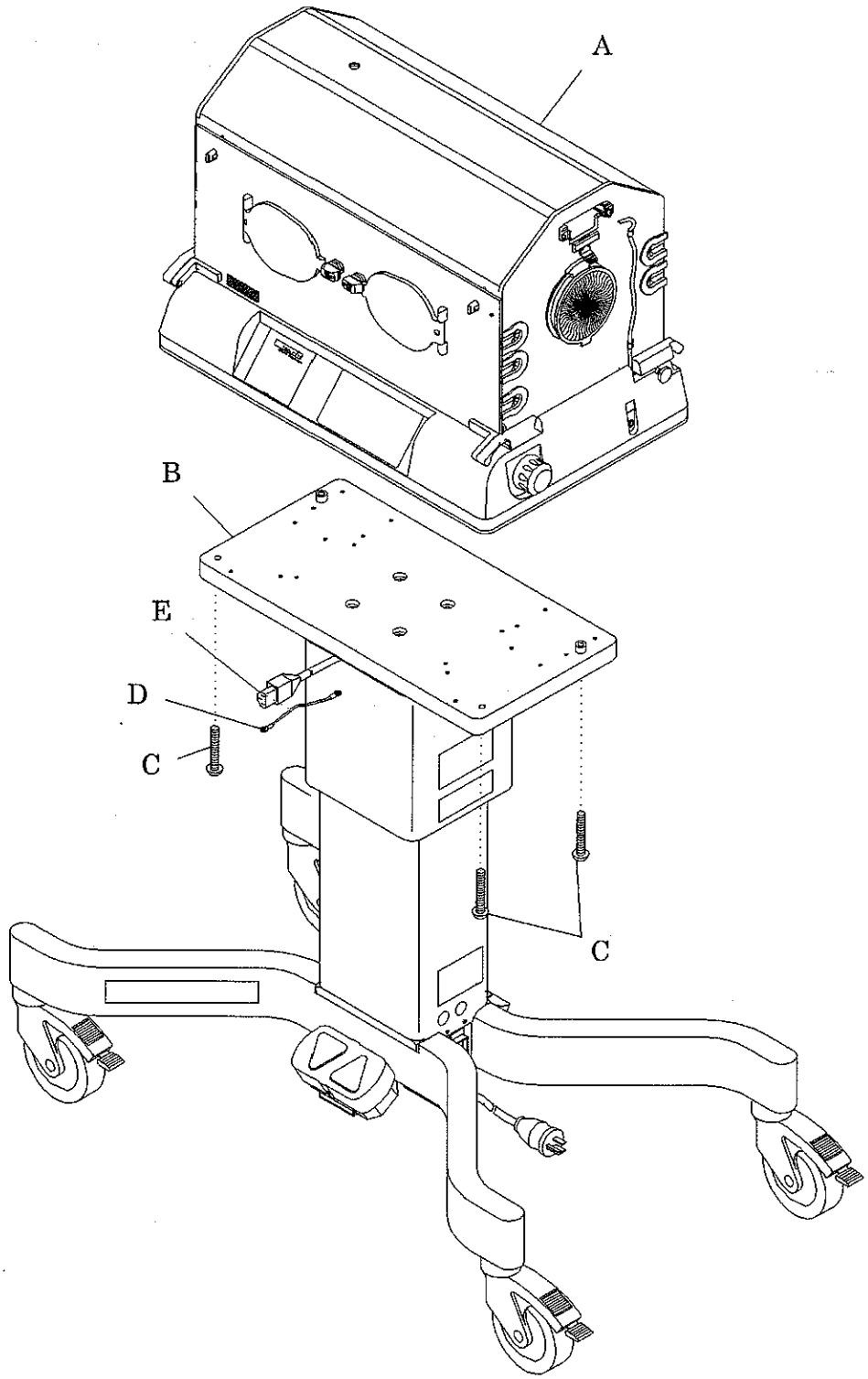
NOTE:
The hood/shell and the pedestal/stand are keyed such that the hood/shell can only be mounted on the pedestal when the hood/shell power cord receptacle is located on the same side as the line cord coming out of the pedestal/stand.

WARNING:
The incubator must be attached to the pedestal/stand using the bolts provided. Failure to do so could result in the incubator separating from the pedestal/stand if sufficiently tilted, particularly with the hood open.

2. Connect the pedestal/stand power cord (D) to the incubator power cord receptacle.
3. Remove the wing nut next to the power cord connector.
4. Place the ring lug of the controller ground lead (E) on the stud.
5. Replace the wing nut.
6. Plug the unit into an appropriate power source.

WARNING:
To keep the incubator from sliding when parked on an incline, face the pedestal stand front locking casters down the incline and locked.

Figure 6-6. Assembling the Hood/Shell on the Pedestal/Stand



m223f075

Setting Up

The installation/set-up menu provides a means to activate or deactivate the humidity system, oxygen system, and Skin Mode. The **Skin Temperature** alarm limit may be set to either ±0.5°C or ±1°C, and the oxygen calibration level may be set to either 100% or 21%.

NOTE:
The controller has the capability to select the following languages: English, French, German, Spanish, Italian, Flemish, Dutch, Norwegian, Danish, Japanese, Polish, Finnish, Portuguese, Swedish and Greek.

In addition, you can select the desired language along with weight units of kilograms or pounds.

To enter the Set-up menu, perform the following:

1. Turn the controller off.
2. Press and hold the **Silence/Reset** key while simultaneously turning on the controller power switch.
3. Press the **Display Selection** key to highlight the desired option, parameter, or mode (see table 6-4 on page 6-23).
4. Press the Up Arrow to select "YES" (activate), "100%,", "1.0°C," or "lb," to select the language, or to raise the air set temperature.
5. Press the Down Arrow to select "NO" (deactivate), "21%," "0.5°C," or "kg," to select the language, or to lower the air set temperature.
6. To exit, press the **Silence/Reset** key.

Table 6-4. Set-up Options, Parameters, and Modes

Display Selection key selections	Up Arrow key selections	Down Arrow key selections
Humidity option	Yes	No
Oxygen option	Yes	No
Oxygen calibration level	100%	21%
Skin temperature alarm limit	1°C	0.5°C
Skin Mode	Yes	No
Language	English	Italian
	French	Spanish
	German	German
	Spanish	French
	Italian	English
Air set temperature	30 to 37	37 to 30
Weight unit	lb	kg
Altitude	< 10000' (3048 m)	> 10000' (3048 m)

6.2 Oxygen Sensor Calibration

Tools required: None

If the message **Cal Required** appears, calibrate the oxygen control system as described below. Daily calibrations are recommended. To maintain system accuracy, a 7-day calibration cycle is required.

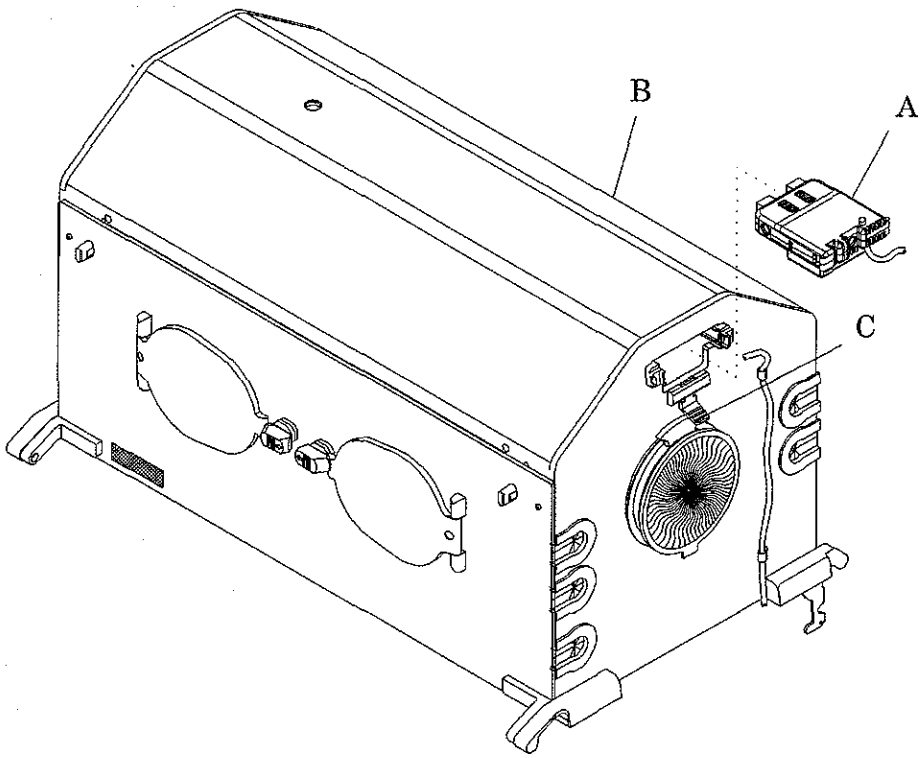
Room Air—21% Oxygen

1. On Display 1, press the **Oxygen** key.
2. Press the **On** key, and then the **Cal** softkey.

NOTE:
To prevent a **Cal Fail** message, withdraw the sensor module from the hood within 5 seconds of pressing the **Cal** Softkey.

3. Pull down on the lock (C), and withdraw the sensor module (A) from the incubator hood (B) (see figure 6-7 on page 6-24).

Figure 6-7. Withdrawing the Sensor Module



m223f032

4. When calibration is complete, the message **Cal Pass** appears in the **Oxygen** display.

5. Return the sensor module (A), and push up on the lock (C).

6. Press the **On** softkey.

7. If the message **Cal Fail** appears, go to step 1.

8. If the calibration procedure is unsuccessful a second time, refer the unit to qualified service personnel.

100% Oxygen

NOTE:
To perform the 100% oxygen calibration procedure, the incubator hood must be equipped with the 100% calibration fixture.

1. Connect an oxygen hose to a 100% medical grade oxygen source at 3 to 5 lmp and to the barb fitting on the calibration fixture.

2. Turn on the oxygen.

3. On Display 1, press the **Oxygen** key.

4. Press the **On** key and then the **Cal** softkey.

NOTE:
To prevent a **Cal Fail** message, withdraw the sensor module from the hood within 5 seconds of pressing the **Cal** softkey.

5. Pull down on the lock (C), and withdraw the sensor module (A) from the incubator hood (B) (see figure 6-7 on page 6-24).

6. When calibration is complete, the message **Cal Pass** appears in the oxygen display.

7. Return the sensor module (A).

8. Push up on the lock (C).

9. Press the **On** softkey.

10. If the message **Cal Fail** appears, go to step 1.

11. If the calibration procedure is unsuccessful a second time, refer the unit to qualified service personnel.

6.3 Oxygen Concentration Test

Tools required: Oxygen analyzer
3/16" inner diameter surgical tubing

NOTE:
This test only applies to units that are not equipped with an oxygen control system.

1. Connect the output of the oxygen flowmeter to the nipple of the oxygen input valve using 3/16" inner diameter surgical tubing. An oxygen concentration guide is provided below (see table 6-5 on page 6-27). This guide also appears on the back of the incubator.

Table 6-5. Oxygen Concentration Guide

Oxygen Supply	Approximate Oxygen %
3 lpm	30%-40%
6 lpm	45%-60%
9 lpm	50%-70%
12 lpm	55%-75%
15 lmp	60%-80%

2. Allow oxygen concentrations to stabilize.

WARNING:
Oxygen flow rates cannot be used as an accurate indication of oxygen concentration in an incubator. Continuously monitor the oxygen concentrations with a calibrated oxygen analyzer. Failure to do so could result in personal injury or equipment damage.

3. Place a calibrated oxygen analyzer on the mattress in the incubator.

4. Apply oxygen at the flow rates described in table 6-5 on page 6-27.

6.4 Weighing Scale Calibration

Tools required: Weight, 11 lb (5 kg) (P/N 03 310 16)

Upon installation and every 6 months thereafter, calibrate the scale using a calibrated weight and the following procedure:

1. Ensure that the mattress is level and not in the Trendelenburg or Reverse Trendelenburg position.
2. Select Display 2, and press the **Weigh** softkey.
3. If objects are on the mattress, remove them before pressing the **Zero** softkey.
4. Press the **Zero** softkey two times.
5. Press the **Cal** softkey.
6. Wait for a weight reading.
7. Place a calibrated 11 lb (5 kg) weight on the mattress.
8. Wait for a weight reading.
9. Ensure a reading of "5.000 kg" appears.
10. Remove the weight.
11. Press the **Home** softkey.

6.5 Current Leakage Test

Tools required: Leakage tester

Set-Up

1. Connect the controller to the primary power source through an ungrounded adapter plug so that the unit is ungrounded.

2. Turn the power switch on.

NOTE:
The leakage current test standards, provided in the test procedures below, assume leakage through a resistance of 1000 ohms.

3. If the leakage tester being used does not provide this resistance, adjust the test set-up to provide it.

4. Turn the power switch off.

NOTE:
The leakage current test standards, provided in the test procedures below, assume leakage through a resistance of 1000 ohms.

5. If the leakage tester being used does not provide this resistance, adjust the test set-up to provide it.

Procedure

1. Use the leakage current tester to measure between the chassis of the unit and a known ground such as the ground connection of a wall receptacle.

NOTE:
The leakage current must not exceed 300 uA for 100V AC/ 120V AC units or 500 uA for 220V AC/240V AC units.

2. Reverse the plug, and repeat the previous step.

Tool and Supply Requirements

To service the Isolette® Infant Incubator, the following tools and supplies are required:

- Phillips head screwdriver
- Oxygen analyzer
- Leakage tester
- 3/16" inner diameter surgical tubing
- Weight, 11 lb (5 kg) (P/N 03 310 16)
- 12" long wooden prop
- Pliers
- Access panel gauge (P/N 83 900 14)

Chapter 7
Accessories

Chapter Contents

Accessories . . . . . 7 - 3
Weighing Scale . . . . . 7 - 4
Installation . . . . . 7 - 4
Removal . . . . . 7 - 5
Oxygen System . . . . . 7 - 6
Installation . . . . . 7 - 6
100% Calibration Fixture Installation . . . . . 7 - 9
Removal . . . . . 7 - 10
Humidity System ("00" and "01" Series Models Only) . . . . . 7 - 11
Installation . . . . . 7 - 11
Removal . . . . . 7 - 14
Humidity System ("02" Series Model Only) . . . . . 7 - 15
Installation . . . . . 7 - 15
Removal . . . . . 7 - 18

NOTES:

Accessories

For Isolette® Infant Incubator accessories, see table 7-1 on page 7-3.

Table 7-1. Accessories List

Product Number	Description
83 444 00 (2000)	IV pole assembly
83 442 00 (2000)	Monitor shelf assembly, high
83 441 00 (2000)	Swivel drawer assembly, small
83 440 00 (2000)	Swivel drawer assembly, large
83 443 00 (2000)	Oxygen tank bracket assembly
83 001 05 (2000)	Ventilator tube support
83 610 70 (2000)	Humidity system assembly, 120V (120V model only)
83 610 80 (2000)	Humidity system assembly, 240V, English/Spanish/French/German/Italian (240V model only)
83 610 90 (2000)	Humidity system assembly, 100V (100V model only)
83 613 70 (2000)	Humidity system, 120V (120V model only) ("02" series model only)
83 613 80 (2000)	Humidity system, 240V, English/Spanish/French/German/Italian (240V model only) ("02" series model only)
83 613 81 (2000)	Humidity system, 240V, Swedish/Greek (240V model only) ("02" series model only)
83 613 90 (2000)	Humidity system, 100V (100V model only) ("02" series model only)
83 670 50 (2000)	Oxygen assembly green DISS
83 670 51 (2000)	Oxygen assembly green
83 670 52 (2000)	Oxygen assembly white
83 670 53 (2000)	Oxygen assembly blue

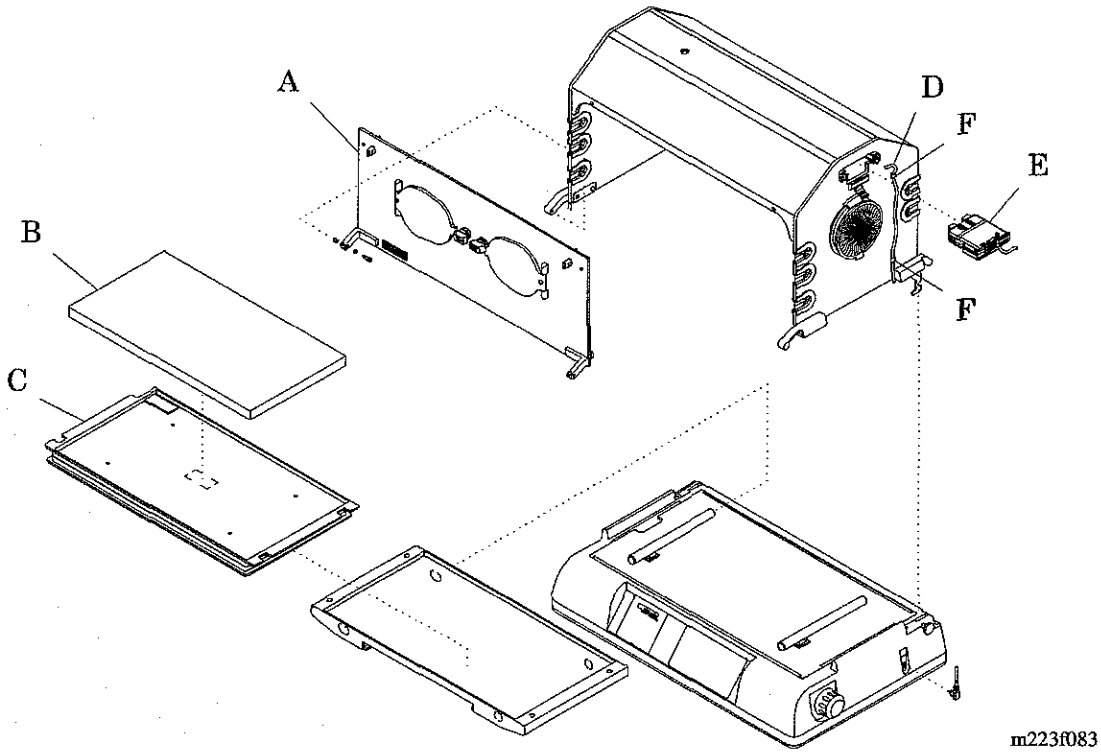
7.1 Weighing Scale

Tools required: None

Installation

1. Open the access door (A) of the incubator (refer to procedure 4.7) (see figure 7-1 on page 7-4).

Figure 7-1. Installation of the Weighing Scale



2. Remove the mattress (B) from the incubator.

3. Place the scale (C) in the incubator. Make sure the scale/sensor module cable (D) is located on the right side of the incubator.

4. Replace the mattress (B) in the scale (C) tray.

5. Connect the scale/sensor module cable (D) to the weight connector on the sensor module (E).

6. Make sure there is sufficient cable slack between the edge of the hood and the scale to permit the hood to be raised to its full open position and the mattress tray to be fully withdrawn from the hood.

WARNING:
Ensure all sensor leads are properly routed. Use cable management clips to avoid entanglement and possible injury.

7. Secure the scale/sensor module cable (D) to the incubator end wall using the cable clips (F) provided on the inside of the incubator wall.

8. Calibrate the weighing scale (C) (refer to procedure 6.4).

Removal

Perform the installation procedure in reverse order.

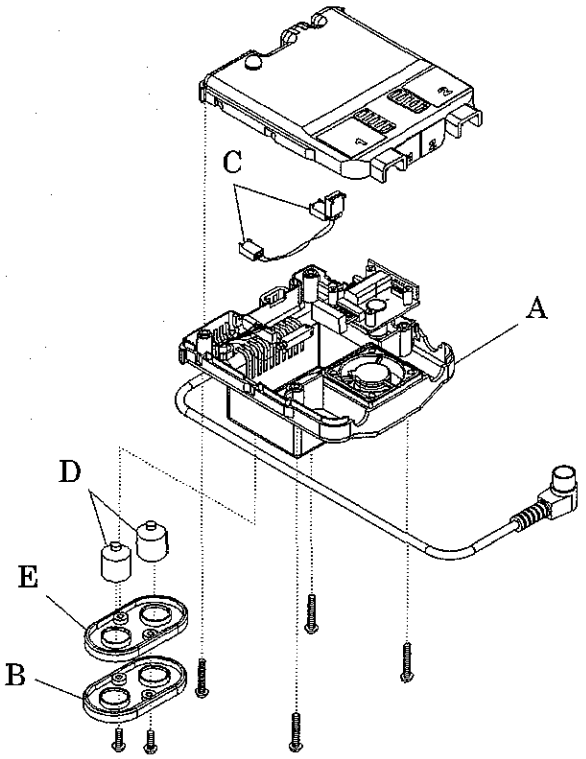
7.2 Oxygen System

Tools required: Phillips head screwdriver
Pliers

Installation

1. Remove the sensor module (A) from the hood by withdrawing it until it stops (see figure 7-2 on page 7-6).

Figure 7-2. Installation of Oxygen Sensor Cells



   a. Pull out the clip located on the left side of the sensor module (A).
   b. Remove the sensor module (A) from the hood.

2. Using the phillips head screwdriver, remove the screws that secure the oxygen sensor cover (B).

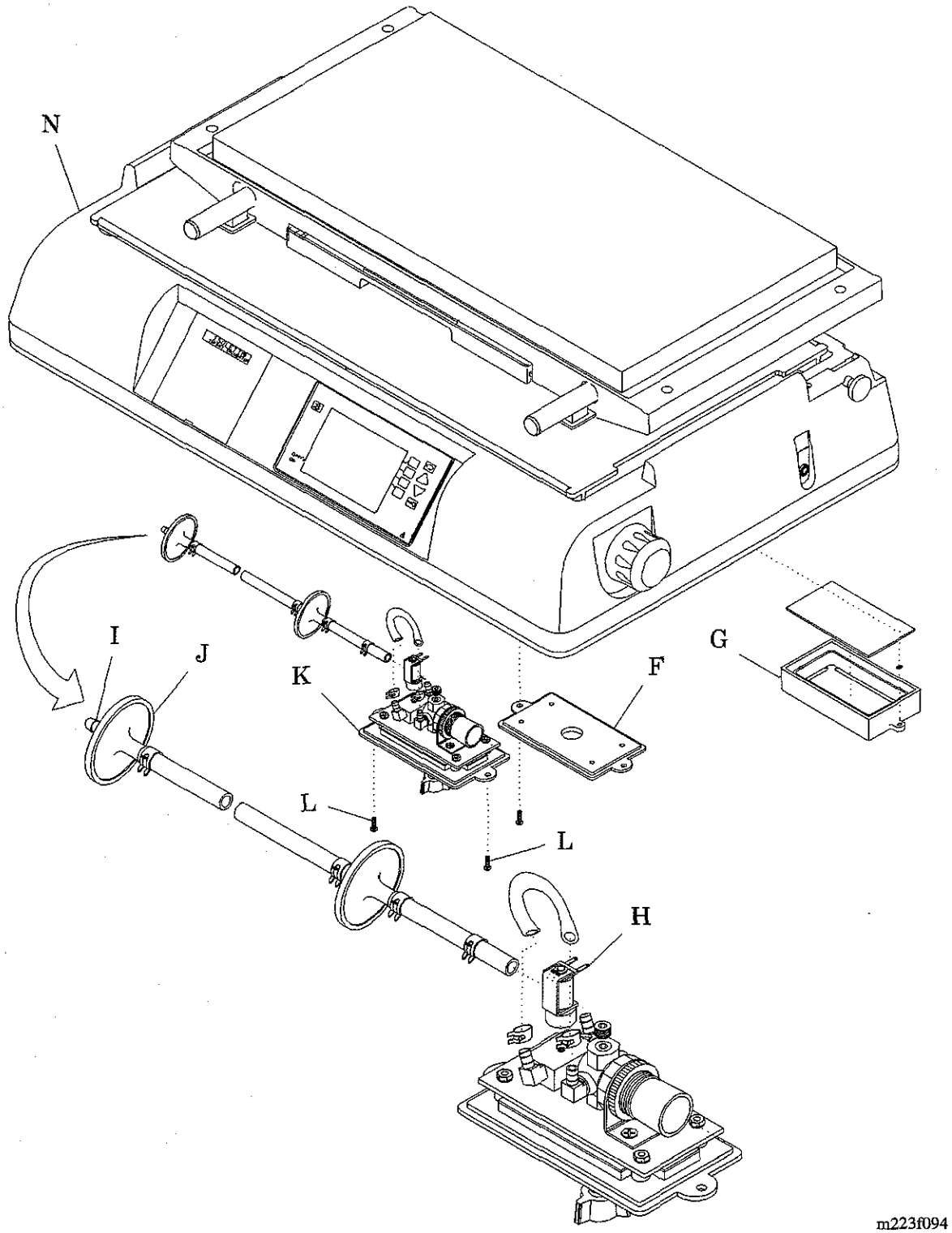
3. Remove the oxygen sensor cover (B). Retain the screws.

4. Withdraw the sensor cell connectors (C) from inside the sensor module (A) housing.

5. Screw the sensor cells (D) into the oxygen cell mounting plate (E) provided.

6. Connect the sensor cells (D) to the sensor module (A).
7. Using the phillips head screwdriver, install the oxygen cell mounting plate (E) on the sensor module (A).
8. Install the sensor module (A) in the hood.
9. Remove the panel (F) next to the filter cover (G) (see figure 7-3 on page 7-8).
10. Find the oxygen hose.
11. Find the solenoid leads, and release them from the clip attached to the shell (N) wall.
12. Release the plug from the end of the oxygen hose by squeezing the retaining clamp with pliers, and sliding it up the hose.
13. Remove the plug, and discard it.
14. Connect the leads to the control valve assembly solenoid (H).
15. Connect the oxygen hose to the barb fitting (I) on the filter assembly (J).
16. Lock it in place with the retaining clip.
17. Mount the control valve assembly (K) and the hose hanger on the shell (N) using the two #8-32 screws (L) provided.
18. Activate the oxygen system.
19. Calibrate the oxygen system at 21%.

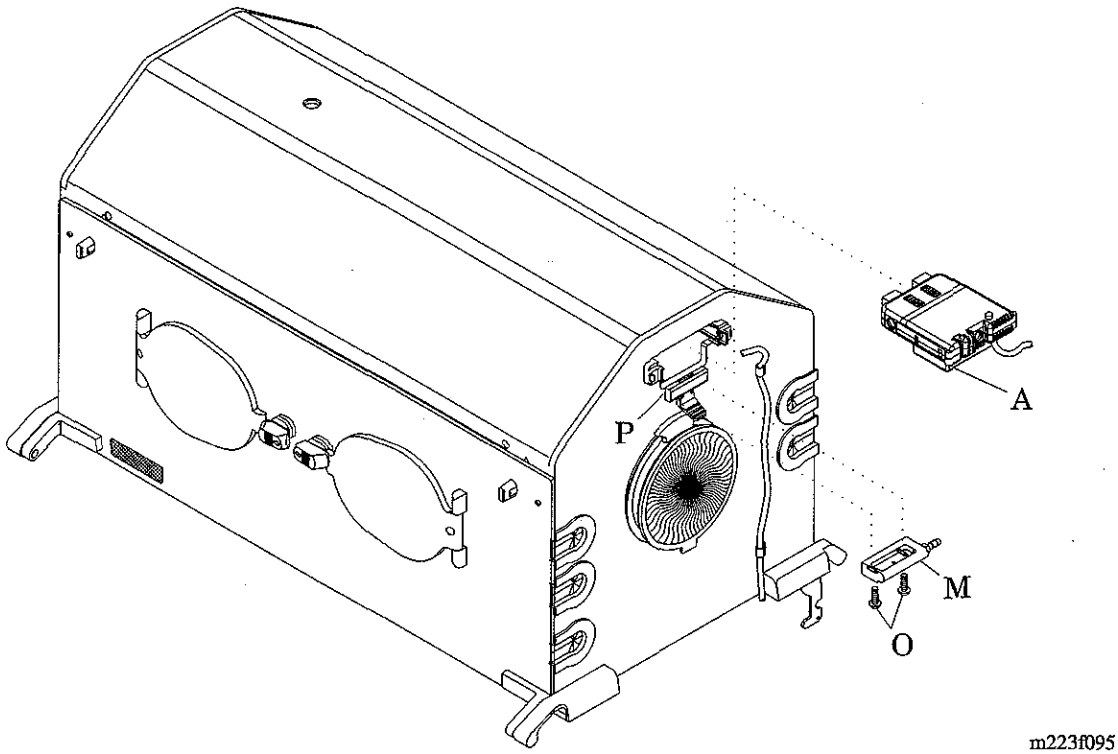
Figure 7-3. Control Valve Assembly



100% Calibration Fixture Installation

1. Remove the sensor module (A) from the hood by withdrawing it until it stops (see figure 7-4 on page 7-9).

Figure 7-4. Installation of the 100% Oxygen Calibration Fixture



2. Pull out on the clip located on the left side of the sensor module (A), and remove the sensor module (A) from the hood.

NOTE:
The 21% fixture is located under the sensor module opening.

3. Remove the existing 21% calibration fixture from the hood.

4. Retain the screws (O).

5. Mount the 100% calibration fixture (M) directly under the sensor module (A) opening using the screws (O) and the slide lock (P).

6. Replace the sensor module (A).

7. Select the 100% Calibration level.

8. Calibrate the oxygen sensor using the 100% calibration procedure.

Removal

Perform the installation procedure in reverse order.

7.3 Humidity System ("00" and "01" Series Models Only)

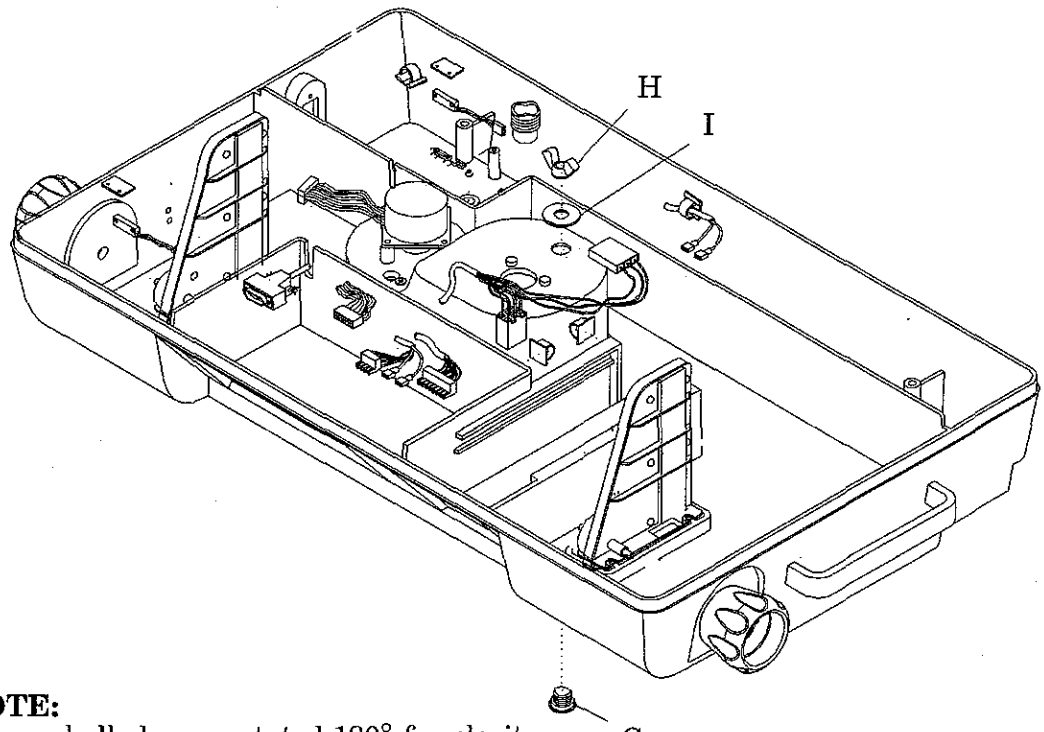
Tools required: Small screwdriver

Installation

CAUTION:
To prolong the useful life of the humidity module, use only distilled water. Sterile water is not an acceptable substitute for distilled water.

1. Remove the mattress tray (A), mattress tilt bars (B), main deck (C), and heater/impeller cover (D) (see figure 7-6 on page 7-12).
2. Remove the heater radiator (E) by unscrewing it.
3. Remove the humidity opening cover (F) by inserting a small screwdriver or similar device in the slot at the bottom center of the cover (F).
4. Remove the hole plug (G) at the bottom of the heater/impeller cavity by loosening the wing nut (H) and removing the flat washer (I) inside the shell (see figure 7-5 on page 7-11).

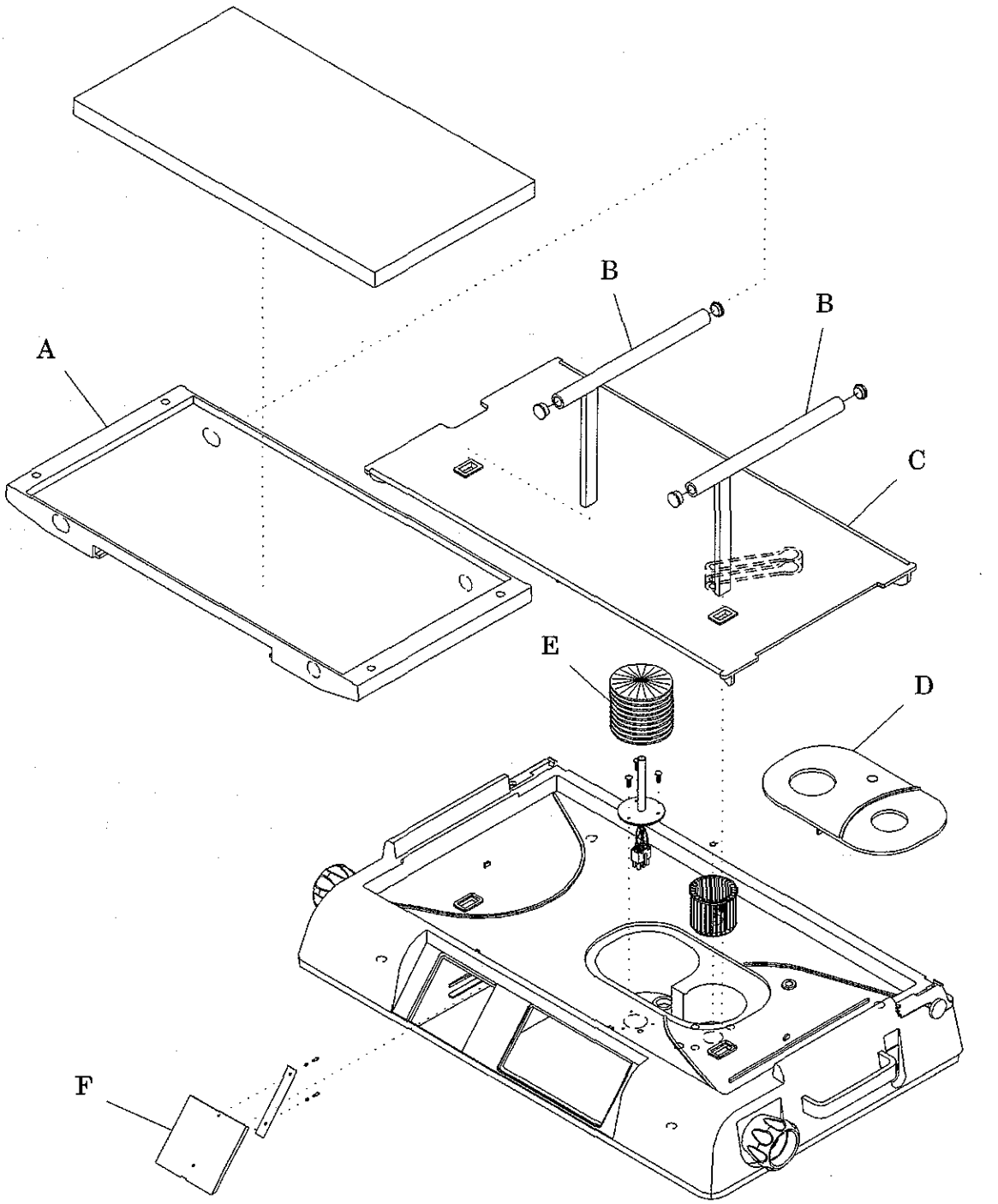
Figure 7-5. Removing the Hole Plug



NOTE:
Upper shell shown rotated 180° for clarity.

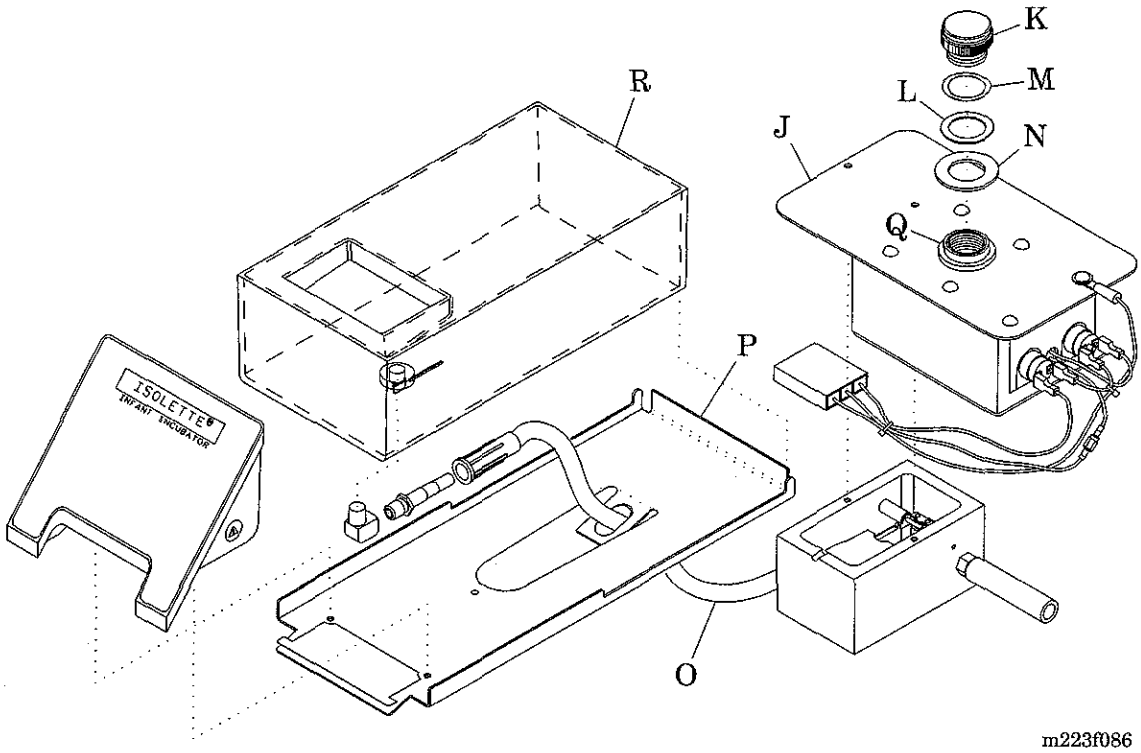
m223f085

Figure 7-6. Removing the Humidity Opening Cover



5. Find the humidity cable, and connect it to the humidity control module (J) (see figure 7-7 on page 7-13).

Figure 7-7. Humidity Control System



6. Remove the humidity cap (K), metal washer (L), and o-ring (M) from the top of the humidity module (J). Leave the polypropylene washer (N) in place.

7. Thread the humidity hose (O) through the round hole in the humidity tray (P), and connect it to the barb fitting on the side of the humidity module (J).

8. Insert the humidity module (J) into the shell.

9. Place the humidity cap collar (Q) (see figure 7-7 on page 7-13) in the hole vacated by the hole plug (G) (see figure 7-5 on page 7-11).

10. Secure the humidity module (J) to the shell using the humidity cap (K), the metal washer (L), and the o-ring (M) (see figure 7-7 on page 7-13).

11. Place the humidity hose (O) in the retaining clip located on the bottom of the humidity tray (P) opening.

12. Insert the humidity tray (P) into the shell.

13. Connect the humidity hose (O) to the reservoir (R), and install the reservoir (O) in the humidity tray (P).

14. Reassemble the incubator.

15. Activate the humidity system.

Removal

Perform the installation procedure in reverse order.

7.4 Humidity System ("02" Series Model Only)

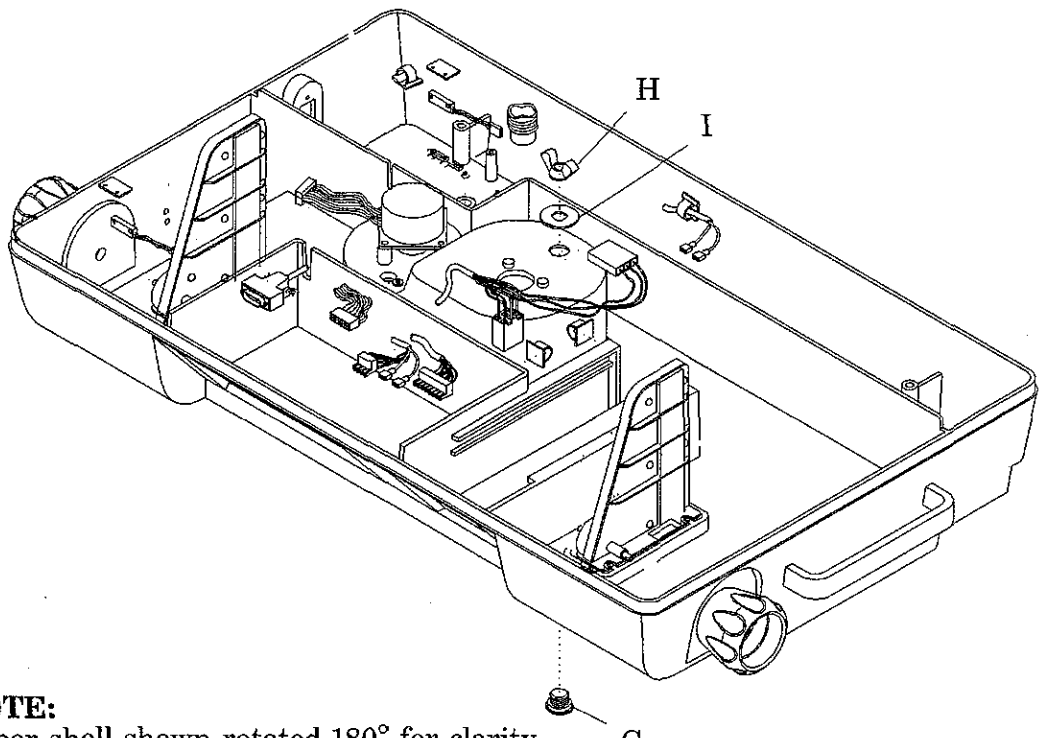
Tools required: Small screwdriver

Installation

CAUTION:
To prolong the useful life of the humidity module, use only distilled water. Sterile water is not an acceptable substitute for distilled water.

1. Remove the mattress tray (A), mattress tilt bars (B), main deck (C), and heater/impeller cover (D) (see figure 7-9 on page 7-16).
2. Remove the heater radiator (E) by unscrewing it.
3. Remove the humidity opening cover (F) by inserting a small screwdriver or similar device in the slot at the bottom center of the cover (F).
4. Remove the hole plug (G) at the bottom of the heater/impeller cavity by loosening the wing nut (H) and removing the flat washer (I) inside the shell (see figure 7-8 on page 7-15).

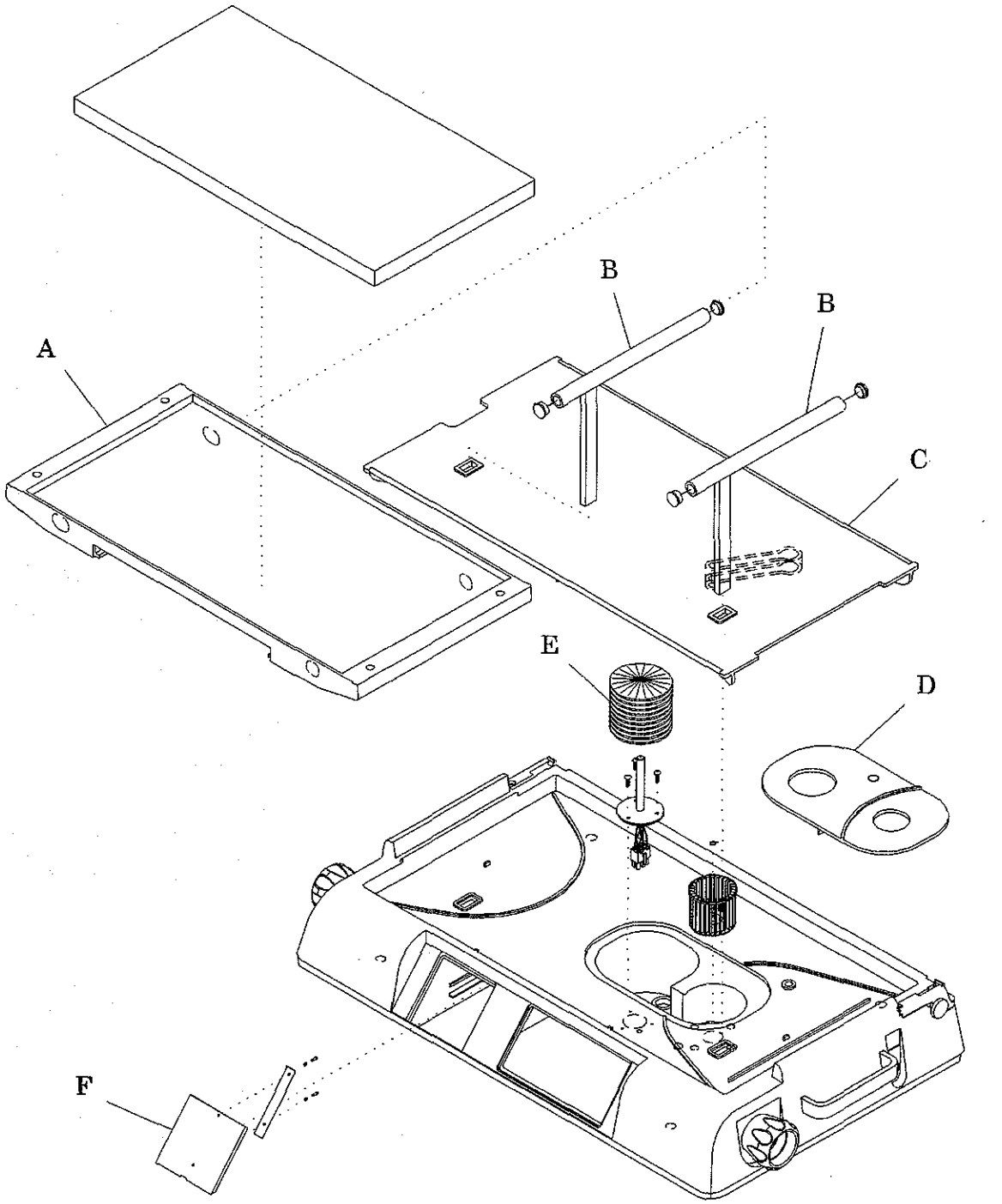
Figure 7-8. Removing the Hole Plug



NOTE:
Upper shell shown rotated 180° for clarity.

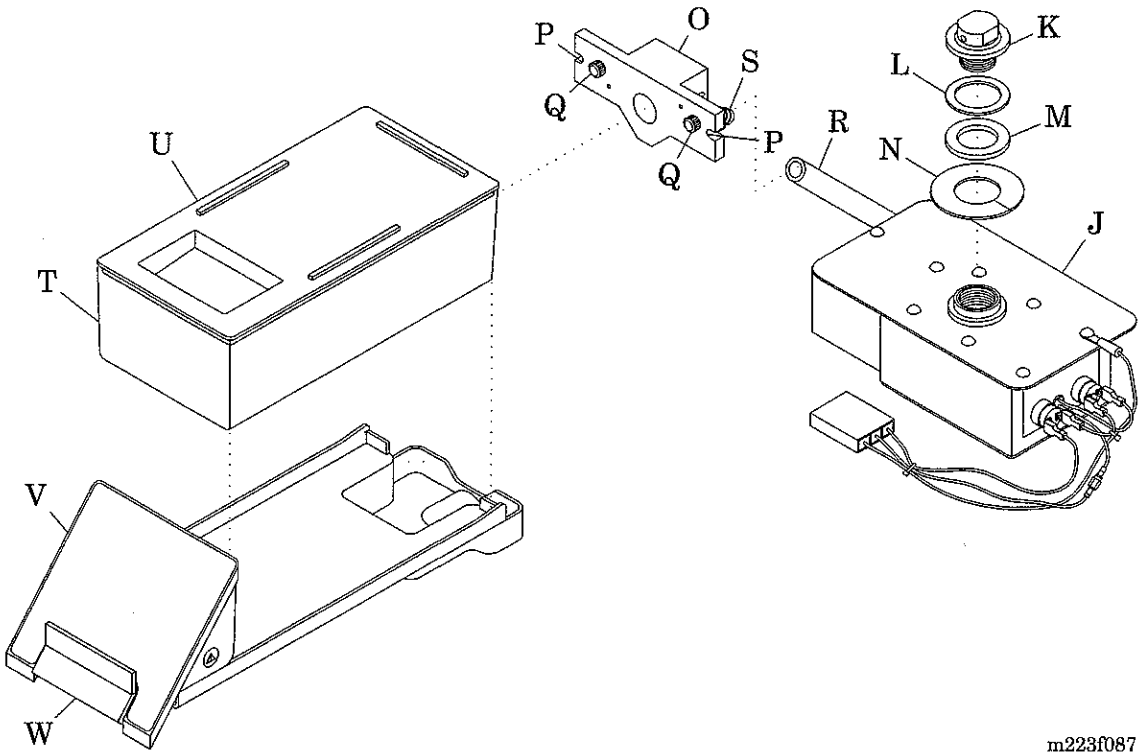
m223f085

Figure 7-9. Removing the Humidity Opening Cover



5. Find the humidity cable, and connect it to the humidity control module (J) (see figure 7-10 on page 7-17).

Figure 7-10. Humidity Control System



6. Remove the evaporator cap (K), stainless steel flatwasher (L), and silicone flatwasher (M) from the top of the humidity module (J). Leave the polypropylene flatwasher (N) in place.

7. Insert the humidity module (J) into the shell.

8. Place the humidity cap collar in the hole vacated by the hole plug (G) (see figure 7-8 on page 7-15).

9. Secure the humidity module (J) to the shell by using the evaporator cap (K), polypropylene flatwasher (N), stainless steel flatwasher (L), and silicone flatwasher (M) (see figure 7-10 on page 7-17).

10. Slide the humidity manifold assembly (O) provided to the rear of the humidity opening. Ensure that the mounting tabs (P) are placed in a horizontal position.

11. Reach into the humidity opening, turn the thumbscrews (Q) on the humidity manifold assembly (O) two turns counterclockwise, and then tighten. Ensure that the humidity manifold assembly (O) is secured.

CAUTION:
To prevent damage to the humidity cap collar that secures the humidity module to the shell, be careful not to twist the humidity module around the horizontal axis when installing the tubing on the module.

12. Connect the tubing (R) from the humidity module (J) to the barb fitting (S) on the humidity manifold assembly (O). Do not twist the humidity module (J) around the horizontal axis.

13. Mount the reservoir (T) and reservoir lid (U) provided on the humidity tray (V) provided.

14. Insert the humidity tray (V) into the shell, and lock the handle (W).

15. Reassemble the incubator.

16. Activate the humidity system.

17. Go to "Function Checks" on page 2-4.

Removal

Perform the installation procedure in reverse order.